



MESSAGE FROM PRESIDENT OF SEAAIR

Dear delegates of SEAAIR 2019 Conference,

On behalf of SEAAIR, I would like to extend a very warm welcome to all participants of the 19th Annual SEAAIR 2019 Conference in Taiwan. This year, the annual conference of SEAAIR is organized out of the region witnessing the cooperation between SEAAIR and TAIR.

For SEAAIR 2019, we received a total of 115 papers from 13 countries that underwent rigorous reviews leading to a final acceptance of 83 full papers published in the conference proceeding.

Nowadays, institutional research (IR) has developed steadily. Data, research findings, implications and recommendations has been developed, making intelligence become available resource. However, it seems that institutions may find it difficult to turn this information into decisions and actions. The 2019 Conference theme, "Transforming Intelligence into Action in IR" will be an opportunity for exchanging, sharing intelligences among participants and between the South East Asia and Taiwan as the SEAAIR conferences have always aimed to bring together policy-makers, academics, researchers and practitioners all together.

SEAAIR has grown over the past 19 years, not only to provide academic papers but also to offer and share the rich culture by each host institution anchored in Malaysia, Thailand, Indonesia, the Philippines, Singapore, Vietnam and now Taiwan. We hope that everyone will enjoy the conference's learning, sharing and the hospitality of Taiwan - "hidden gem of Asia'.

We sincerely thank all the co-organizers and co-host of the SEAAIR2019, who are prestigious Taiwanese universities in the field of institutional research. A special thanks to Hwa Hsia University of Technology and the LOC members for taking up the challenge in hosting SEAAIR.

Finally, we would like to extend our sincere thanks to all participants for their interest and effort in IR and making the 2019 SEAAIR Conference in Taiwan a success.

Thank you.

Assoc. Prof. Dao Ngoc Tien, Ph.D



Openning Speech

Welcome to the SEAAIR2019 annual conference in Taipei, Taiwan.

It is our pleasure to meet all the distinguished Professors, Speakers, Presenters, Sponsor and also experts and scholars in this **SEAAIR Conference and Call for Papers 2019.**

This conference will be a joint effort of South East Asian Association for Institutional Research (SEAAIR), Taiwan Association for Institutional Research (TAIR), Hwa Hsia University of Technology, Hsuan Chuang University and National Taipei University of Education, National Taiwan University of Science and Technology, National Taipei University of Technology, National Chengchi University, Shih Chien University, Providence University, Lunghwa University of Science and Technology, National Kaohsiung University of Science and Technology, National Kaohsiung University of Science and Technology.

The theme of this year's conference is "**Transforming Intelligence into Action in IR**." The conference aims to facilitate international exchange in IR, to transform the wisdom in IR research into action in order to advance the development of teaching and learning in higher education. And there are five Sub-theme include

Quality Assurance: Practices, Impacts and Outcomes

Advanced Technology and IR Application: Social Networks, Data Warehousing and Data Collection Institutional Governance: Enrollment, Social Mobility and Higher Education Accountability Teaching Dimensions and Possibilities: Innovations, Performance and Assessment Research Institutionalization: Systems, Dissemination and Utilization

We hope, through this conference, we can synergizes and collaborated of our researches, we can produce many ways and problem solver, continuously, in order to anticipate the changing of world evolution especial in Education.

Thank you to presenters, moderators, sponsor, committee, and for all of you, for your participation, your attention, your funding, your hard work, for the accomplishment of this conference. Wish to meet you again on the next conference. Thank you!

Chingjong Lias

Ching-Jong Liao



President Ching-Jong Liao Taiwan Association for Institutional Research

Shin-Jen Chang

Shin jen Chang



President Shin-Jen Chang National Taipei University of Education

Hsi-Kuei Chen

Cher, har-ling



President Hsi-Kuei Chen Hwa Hsia University of Technology

Cliven Shao. Chi

Shao-Chi Chien



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Assoc. Prof. Dr. Teay Shawyun

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*** List by the Order of Pronunciation of Last Name***



SEAAIR2019 19th Annual Conference Agenda 25th-27th September, 2019

DAY1 Wednes	day, 25 th September,	2019		
TIME		ACTIV	/ITIES	
09:00-09:30	09:30 Registration			
09:30-09:55	Welcome			
09:55-10:00	Break			
10:00-10:30	Opening Plenary Session VIP Greeting(In the approved agenda, includes: National Anthem, Opening Remarks, Welcome message, Exchange of tokens)			
10:30-11:00		Group Photo Tak	ing / Coffee Break	
Keynote Speech I Moderator : Dr. Shi-Huei Ho/ Prof. of University Speaker : Dr. Faxian Yang Director of Institutional Research Columbia South Carolina, . Topic : Institutional Research and its Role i			Speech I University of Taipei Research, University its Role in USA.	of South Carolina,
12:30-13:30	Lunch Break To	oderator : Dr. Yu-C Prof. of C eaker : Dr. Samu Honorary Universit pic : Holistic A Collectio	Panel Session hen Hsiao Chihlee University of T tel S. Peng / Chari Professor, National ty. Approaches to Institution on and Applications	[°] echnology onal Sun Yat-sen onal Data
		Parallel	Session I	
13:30-15:00	Session I-A ROOM A(Y601)	Session I-B ROOM B(Y603)	Session I-C ROOM C(Y6)	Session I-D ROOM D(Y803)
15:00-15:15		Coffee	Break	1
		Parallel S	Session II	
15:15-16:45	Session II-A ROOM A(Y601)	Session II-B ROOM B(Y603)	Session II-C ROOM C(Y6)	Session II-D ROOM D(Y803)



SEAAIR2019 19th Annual Conference Agenda 25th-27th September, 2019

DAY2 Thursda	y, 26 th September, 20	19		
TIME		ACTIVI	ΓIES	
09:00-09:30		Registra	tion	
09:30-09:45		Welco	me	
		Keynote Sp	eech II	
	Moderator : Dr.	Eric S. Lin/ Prof. of Nat	tional Tsing Hua Univ	versity
	Speaker : Dr.	Tongshan Chang		
09:45-10:45	Dire	ector of Institutional Res	search and Academic	Planning,
	Uni	versity of California Off	fice of the President	
	Topic : From	m Data to Action: IR's R	tole in Making Transf	formational Change
	in H	ligher Education		
10:45-11:00		Coffee B	reak	
		Parallel Ses	sion III	
11:00-12:30	Session III-A	Session III-B	Session III-C	Session III-D
	ROOM A(Y601)	ROOM B(Y603)	ROOM C(Y6)	ROOM D(Y803)
12:30-13:30		Lunch B	reak	
		Parallel Ses	sion IV	
13:30-15:00	Session IV-A	Session IV-B	Session IV-C	Session IV-D
	ROOM A(Y601)	ROOM B(Y603)	ROOM C(Y6)	ROOM D(Y803)
15:00-15:15		Coffee B	reak	
		Panel Se	ssion	
	Theme: Talking About the Decision of IR Applied to University Governance			
	From the Perspectiv	e of the United States		
	Moderator : Dr. S	Shin-Jen Chang		
	Presi	dent of National Taiper	University of Educat	ion
	Speaker1 : Dr. S	oamuel S. Peng orary Chari Professor N	ational Sun Vat-sen I	Iniversity
	Topic : Getti	ing IR Rooted in Higher	Education: American	n Experience.
15.15 17.00	Speaker2 : Dr. V	Ven-Chun Chen		1
13.13-17.00	Educ	cation Research and Dat	a Center, Office of Fi	nancial
	Man	agement, State of Washi	ington, Senior Educat	ion Research
	Anal	yst		
	Topic : Evid	ence-Based Policymakin	ng for Higher Educat	ion: The
	Appl Sneeker3 · Alex	ander van Servellen	ongitudinal Administra	alive Data System
	Speakers . Mex	or Customer Consultant	Research Manageme	nt Solution.
	Elsev	vier		-7
	Topic : Abou	ut the Decision of IR Ap	plied to University G	overnance
18:00-20:00		Cultural 1	Night	



SEAAIR2019 19th Annual Conference Agenda 25th-27th September, 2019

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09:30-11:00 Panel Discussion / Poster Presentation	
11:00-11:15	Coffee Break
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•	The Collegial Adjustment of International Students in Taiwanese Universities: A Case Study of Longhua University of Science and Technology Ting-Ting Chang ^a , Yen-Ru Lai ^b , Chia-Li Chen ^c , Sheng-Wen Huang ^a
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•	Conceptualizing Professional Contribution of Faculty members In University of Taipei Ying-Hao Cheng ¹ , Yuan-Fang Ou ² , Hsin-Ting Wu ³ and Cheng-Hsiu Feng ⁴
•	Demographics as a Variable in Assessing the Quality of Catholic Education of Augustinian Recollect Schools in the Philippines Dennis V. Madrigal ¹ and Enrique G. Oracion ²
•	Eligiosity and Spiritual Well-Being of Catholic Senior High School Students Dennis V. Madrigal ¹ and Rosabella P. Erillo ²
•	Faculty Research Production Capacity: A Review and Influencing Factors Su Sheng-Chu ¹ , Su Chiu-Hung ¹ , and Lin Pey-Ying ²
•	Development of Freshmen Exploratory Project Courses to Promote Providence University Freshmen's Learning Adaptation Ya- Ching Fan, Chia-Chen Lin, Chih-Wen Cheng and Ching-Yi Lai
•	Applying English Movies for Enhancing Vocational University Students' Learning Motivation in English Courses
•	Da-ren Chen

Dr. Faxian Yang

The University of South Carolina, Columbia South Carolina. Director of Institutional Research and Analytics



Topic : Institutional Research and its Role in USA.

ABSTRACT

After briefly reviewing the history of Institutional Research (IR), including its transition and development since 1956, the speaker will focus on the six major roles of Institutional Research in American higher education institutions today. Among the roles, the completion of mandatory reports (e.g. 12 IPEDS reports) and furnishing of aggregate data and analyses to senior leadership for its strategic planning are the most crucial work for IR offices. In order fulfill its responsibility, an IR office needs to collaborate with both extramural organizations and other intramural offices and schools, with principal benefits of such collaboration being exchange of relevant data and the verification of accuracy of data. Then speaker will discuss the basic requirements of an IR employee, which the key elements are integrity and honesty, attention to detail, multi-task orientated, team work, as well as double checking. The speaker will then present two case studies and one critique related to issues faced by American higher education institution, with focuses on low graduation rate; shortage of students majoring in science, engineering or mathematics; and reason for high tuition, whose per annum increase far outpaces rate of inflation. These analyses demonstrate how IR may be utilized to understand underlying factors driving each of the aforementioned issues. The last part of the presentation will discuss recent trends of IR in America, including the effects of big data and business intelligence.



Dr. Tongshan Chang

Director of Institutional Research and Academic Planning University of California Office of President



Topic : From Data to Action: IR's Role in Making Transformational Change in Higher Education.

ABSTRACT

Institutional research has played a great role in illustrating an institution's progress, challenges, and outcomes in support of its decision making. However, as the topic of transformational change in higher education is becoming increasingly prevalent, what should institutional research do to support and promote institutional efforts to make transformation change, especially under the circumstances where higher education has been very different in terms of demographics, the growth of learning industry, higher learning expectations from students, and increased competition for faculty and students? In this session, I will first discuss the difference between regular changes and transformational changes in general and higher education specifically. Second, I will provide a brief overview of institutional research from both historical and evolving perspectives, and challenges facing higher education. Then I will dive into some best practices that demonstrate the role of intuitional research in addressing the challenges and providing support for transformational change in higher education to accomplish its mission.



Dr. Samuel S. Peng

National Sun Yat-sen University Honorary Chari Professor



Topic : Getting IR Rooted in Higher Education: American Experience.

ABSTRACT

Institutional research (IR) was originated in the U.S. in the era of 1960s in which the higher education was expanding rapidly. The main purpose of IR at that time was to ensure the high quality of student learning outcomes. Over the later years, IR was gradually evolved into an academic program of institutional evaluation, problem identification, statistical modeling, and strategic planning for solving problems. It has assumed a major role in an institution's pursuing excellence and prominence. Thus, people with such understanding and appreciation in some other nations would hope to see that IR could also be deeply rooted in their higher education institutions.

But how to achieve this goal is a big issue. What could be done to help reach this goal? Could the American experience provide some helpful guidelines? The purpose of this presentation is to lead the discussion on how IR in the US is so firmly rooted and well run in each institution. The presentation will examine the specific role and contributions of government, IR association and individual institutions to this endeavor. It is hoped that such discussions will be informative and inspiring to all colleagues in this field of work.



Dr. Wen-chun Chen

Education Research and Data Center, Office of Financial Management, State of Washington, Senior Education Research Analyst



Topic: Evidence-Based Policymaking for Higher Education: The Application of Education Longitudinal Administrative Data System

ABSTRACT

Early this year, while the Foundations for Evidence-Based Policymaking Act ("Evidence Act") was passed and signed into law as Public Law 115-435 in the U.S., the new law is seen as a milestone to promote evidence-based policymaking built upon quality and reliable data. To inform education policymaking and evaluate the effectiveness of policies, over a decade, the U.S. Department of Education has funded state education agencies to collect statewide longitudinal data system (SLDS) and conduct data-driven and policy-relevant research. This presentation will focus on how SLDS data is used to inform higher education policy in the state of Washington. Several research projects related to higher education issues, such as financial aid, college preparation and degree completion, learning pipeline in science, technology, engineering, and math (STEM), will be demonstrated. Policy implications, data limitations, and recommendations for future research will be addressed.

Keywords: evidence-based policymaking, higher education, STEM pipeline, education longitudinal administrative data.



SEAAIR2019 THEME

19th South East Asian Association for Institutional Research Annual Conference			
Theme	Transforming Intelligence Into Action in IR		
	Quality Assurance: Practices, Impacts and Outcomes		
	Advanced Technology and IR Application: Social Networks, Data Warehousing and Data Collection		
Sub-Theme	Institutional Governance: Enrollment, Social Mobility and Higher Education Accountability		
	Curricular Dimensions and Possibilities: Innovations, Authentic Assessments and Performance Evaluation		
	Research Institutionalization: Systems, Dissemination and Utilization		



SEAAIR2019 THEME 1.

Quality Assurance: Practices, Impacts and Outcomes





Influence of Learning Strategies on University Students' Academic Performance

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ABSTRACT

Research has been conducted on the increasing number of college students dropping out because they are unprepared for the academic demands of tertiary education, but the effects of the use of learning strategies on academic achievement for students at risk of dropping out of college have been less investigated. Therefore, this study aimed to identify learning factors present only in students with low academic performance and determines specific areas in which support is required to improve these students' experience and retention.

This study involved a survey comprised of two sets of questionnaires concerning demographic information on respondents and learning strategies. The sample was 484 valid responses and the provided data. The respondents completed the learning strategies inventory with 38 items we developed. The quantitative analysis of the questionnaires was performed through descriptive statistics, exploratory factor analysis, correlation analysis, and regression analysis to indicate the direction and relationship between the use of learning strategies and academic performance. The learning strategy instrument comprised four dimensions, namely learning disturbance, test anxiety, self-regulated learning, and self-efficacy, explained 58.39% of the variance. The results demonstrated a negative significant correlation between learning disturbances and academic performance. Targeted interventions for enhancing the performance of students with low academic performance are suggested.

Keywords: Learning Strategies, University Students, Academic Performance






Introduction

To achieve one of the goals of the Europe 2020 strategy—to have at least 40% of 30–34-year-olds complete higher education—reducing dropout and increasing completion rates in higher education are vital parts of the plan (Vossensteyn et al., 2015). However, concern has been raised in higher education regarding students' insufficient preparation to fulfill the academic demands of college and then dropping out of college (Montero & Arizmendiarrieta, 2017; Renzulli, 2015). Academic failure is a difficult situation for students, families, universities, and society (Živčić-Bećirević, Smojver-Ažić, & Martinac Dorčić, 2017). Weissmann (2012) eloquently articulated the problem:

The system is incredibly wasteful. The students who show up but never graduate require administrative and academic resources. They take up precious classroom space, shutting other students out of the courses they need to complete on time.

Notably, entrance into higher education systems and the rate of dropping out of college are increasing; thus, identifying factors related to academic achievement is becoming crucial (Winne & Nesbit, 2010; Živčić-Bećirević et al., 2017). Academic performance can be considered a reflection of the motivation to learn and an index of mental ability (Werbel & Looney, 1994). The factors influencing academic performance include personal effort, time management, peer interaction, environment, campus facilities, completion of assignments, class attendance, academic counseling services, study groups, and teaching style (Sansgiry et al., 2006). However, Carroll and Garavalia (2004) explained that successful academic performance might be determined by effective studying and motivational strategies. Weitzman (1982) observed that many students who enrolled in college fail in academic challenges because they are unprepared for academic work. A recent literature search revealed no studies that have focused on the relationship between the use of learning strategies and academic achievement in students at risk of dropping out of college (Renzulli, 2015).

Lecture attendance is critical role in determining success in school (Fadelelmoula, 2018). Poor academic achievement students with low attendance are critical characteristics of students who later drop out of school (Mayer & Mitchel, 1996). The study also demonstrated that academic performance is influenced by low attendance (Alghamdi et al., 2016). Therefore, this study aims to not only identify the learning strategies uniquely present in students with low academic performance on academic performance but investigate the relationship between lecture attendance and academic performance and determine key factors that require support to improve these students' academic performance and retention.

Literature Review

Academic performance is a critical concern for universities (Vitasari et al., 2010). Researchers have demonstrated that students' learning habits and strategies are related to their academic performance (e.g., Gadzella & Williamson, 1984; Weinstein, 1988; Barbara et al., 2001; Deryakulu et al., 2010; Hill, 2012; Zoysa, Chandrakumara, & Rudkin, 2014). Therefore, strategies for effective studying might improve learning (Zoysa et al., 2014).

Learning strategies encompass a wide variety of learning activities and behaviors (Yip, 2013). Fundamentally, the researchers and practitioners who focus on learning strategies agree that the construct of learning strategies involves the use of cognition, metacognition, motivation, affect, and behavior to enhance the possibility of greater learning and performing higher-order cognitive tasks, such as using information and problem solving (Boekaerts, Pintrich, & Zeidner, 2000; Paris, Lipson, & Wixson, 1983; Pintrich, 2000; Schunk & Zimmerman, 2007; Weinstein & Mayer, 1986).

Learning strategies involve the thoughts and/or actions that students use to complete learning activities (Tomar & Jindal, 2014). The Learning and Study Strategies Inventory (LASSI) model of strategic learning, developed by Weinstein, Husman, and Dierking (2000), illustrates students' academic performance. The LASSI model comprises three interlocking components of learning: will, self-regulation, and skill. Strategic learners must use their skill, will, and self-regulation to become more effective and efficient learners in varied educational environments (Weinstein et al., 2004, 2006). Weinstein's model of strategic learning summarized the aforementioned components, and the model



was adopted to explore the relationship between students' thoughts, behaviors, and dispositions regarding successful learning. The identified traits in the model might be considered essential for educational interventions (Zoysa et al., 2014).

In the LASSI model, the will component involves students' consciousness of self-efficacy, namely, their ability to maintain motivation and sustain a positive attitude toward their learning. The self-regulation component evaluates students' self-regulating abilities regarding, for instance, time management, self-testing strategies, and concentration. The final component, skill, involves students' ability to use different cognitive strategies effectively to cope with learning tasks. Thus, the three components might work together in an interactive manner to complement each other and enhance learning. A substantial amount of empirical support for the LASSI model has been reported (Weinstein and Palmer, 2002).

In addition, Živčić-Bećirević et al. (2017) created a model of learning strategies, comprising three factors—cognitive, motivational, and behavioral—on the basis of the study of Robins et al. (2004). In this model, the cognitive factor included performance self-efficacy, beliefs, and automatic thoughts during learning. Goal theories have suggested that self-efficacy is highly relevant to academic performance, and researchers have provided evidence confirming that negative automatic thoughts (e.g., test anxiety) and worries are negatively related to academic performance (Diaz et al., 2001; Živčić-Bećirević et al. (2017) speculated that cognition factors are crucial to students' self-regulation skills and, consequently, their achievement.

The motivational factor in this model involves self-efficacy and beliefs, and the goal orientation studies have confirmed that the motivational component of self-efficacy beliefs appears to be linked to academic performance (Valentine, Dubois, & Cooper, 2004). The behavior factors in this model involve self-regulatory skills relevant to learning and information processing propositioned by Pintrich (2004). The self-regulatory skills could be thought of as "a making of schedules for studying and allocating time for different activities in addition to having an appropriate place to study."

Their findings have shown that the main objectives for using a learning strategy are to maintain learners' positive attitude toward learning and enable learners to increase their responsibility for their learning process. These findings emphasize the importance of affection, skill, and self-regulated learning behavior in reaching learning goals. This study referred to the literature and then defined learning strategy as the thoughts and/or actions that students use, namely affection, skill, and self-regulated learning behavior, to complete learning activities. To identify the impact of learning strategy on academic performance, this study developed a learning strategy instrument and included the three core dimensions: affection, skill, and self-regulated learning behavior. These dimensions of a learning strategy may be critical in enhancing the performance of students with low academic performance.

Method

1. Participants

A questionnaire survey was administered to 750 students with low academic performance at a private, teaching-oriented, comprehensive university in Northern Taiwan. The participants were students identified to have a risk of dropping out during the second half of the 2017 semester to the first half of the 2018 semester by using an early warning system. The analysis was based on 484 usable responses, with a response rate of 68.7%. As presented in Table 1, 50.6% of the participants were College of Management students, and the remaining were distributed among the College of Business and Information (22.9%) and the College of Culture and Creativity (17.1%). In addition, most participants were in their freshman year (34.7%), whereas the remaining were in their sophomore (29.3%) and senior (17.6%) years. The sample of this study is representative of the general population (χ^2 =.99 < 26.29).

2. Measures

Learning strategy. A systematic literature review revealed that learning strategy comprises affection, skill, and self-regulated learning behavior. The process of development for the learning strategy items was derived from the literature and generated 38 items that used a 5-point Likert response scale. The process used for the validity and reliability evaluation is presented in Section 4.



Lecture attendance. The students' attendance was a score recorded for each class, and data were obtained over two semesters—from the second half of the 2017 semester to the first half of the 2018 semester—from the Office of Student Affairs.

Academic performance. Because commonly used measures of student achievement may reflect different information regarding student performance (Dickinson and Adelson, 2016), we used students' semester grade from the second half of the 2017 semester to the first half of the 2018 semester to investigate the relationship between learning strategy, lecture attendance, and academic performance.

Characteristic	Number	0/	Characteristic	Number	%	
College	Number	70	Grade	Number		
Management	245	50.6	1 st	168	34.7	
Human Ecology	19	3.9	2 nd	142	29.3	
Design	26	5.4	3 rd	71	14.7	
Business and Information	111	22.9	4 th	85	17.6	
Culture and Creativity	83	17.1	5 th	17	3.7	

Table 1: Profile of the respondents

3. Data Analysis

Data analysis was performed by using the SPSS for Windows (version 24.0). Descriptive analysis was used to summarize the sample's characteristics. An exploratory factor analysis (Hair et al., 1998) was used to determine the construct validity of the learning strategy scale. The Cronbach's alpha was used to verify instrument reliability.

Results

1. Instrument Validity

This study began by reviewing the literature on learning strategies and included three core dimensions, namely affection, skill, and self-regulated learning, to generate 38 items. To obtain a true evaluation, the use of the appropriate number of points on a rating scale is critical. However, before deciding on the ideal number of scale points, the concern that had to be addressed was whether to employ a midpoint on scale (i.e., whether to use an even or odd number for the rating scale). Although the omission of the midpoint in a scale can increase the precision of the response, an argument has been made that the use of an even-numbered scale may lead to biased responses because when respondents are forced to make a definite choice, the tendency of respondents to respond increases negatively (Gwinner, 2006). As such, a 5-point (i.e., odd-numbered) Likert scale was applied to measure the respondents' perspectives in this research.

We used content and construct validity to examine the validity of the learning strategy. The findings of a qualitative study that explored the perceptions of learning strategies from students' perspectives confirmed the content validity for this study. Results from the Kaiser–Meyer–Olkin and Bartlett's tests demonstrated that the samples fulfilled the factor analysis criteria. The Kaiser–Meyer–Olkin measure of sampling adequacy was .90. In addition, Bartlett's test was significant with χ^2 (215) = 5,330.84 and p < .01. Exploratory factor analysis (EFA) established the construct validity of the learning strategy, ensuring that the scale could genuinely and efficiently evaluate interactions. The principal components methods with varimax rotation were performed to extract common factors. Items with a factor loading of <0.4 were selected to ensure a stable factor structure with adequate sample size and the ratio of



participants and variables (Ferguson and Cox, 1993). All 38 items were grouped into four factors based on the scree plot results.

Items were arranged into factors based on the size of loading with respect to the statistical analysis. The first factor comprised 10 items and was named "learning disturbance", as a perception that an individual perceives something that interrupts or makes them feel worried to learn. The second factor comprised 12 items mostly associated with the factor "test anxiety", as a distress state experienced when a person perceives an exam situation as threatening. The third factor was classified with nine items and labeled as "self-regulated learning", which is a process of taking control of and evaluating one's own learning and behavior. The fourth feature was identified with seven items and named "self-efficacy", which is the belief in one's ability to succeed in achieving academic outcome or reaching a goal. These four factor groups explained 58.39% of the variance. The four factors of learning disturbance, test anxiety, self-regulated learning, and self-efficacy accounted for 27.09%, 21.55%, 5.67%, and 4.08% of the variable variance, respectively. Thirty-eight items with up to four items in a subscale, and using item scaling in the creation of a scale to approach content validity, were achieved in this study.

2. Reliability of the Instrument

This study used Cronbach's alpha to evaluate internal consistency, which exceeded the recommended minimum of .7 (Nunnally, 1978). The Cronbach's alpha coefficient for the total score was .92. The alphas for learning disturbance, test anxiety, self-regulated learning, and self-efficacy were .85, .93, .90, and .91 respectively. Coefficient alphas reached the internal consistency estimates of reliability for these four subscales.

3. Correlation and Regression Analyses

The description of all variables used in this study and their correlations are presented in Table 2. Academic performance was significantly correlated with learning disturbance (r = -.12, p < .05) and attendance (r = .60, p < .05). Table 2 also presents the correlations between the four scales measuring students' learning strategy. The learning disturbance scale was positively correlated with test anxiety (r=.73. p<.01) and negatively correlated with self-efficacy (r=-.15. p<.01). In addition, test anxiety was positively correlated with self-regulated learning (r=.24. p<.01) and negatively correlated with self-regulated learning was strongly positively correlated with self-efficacy (r=-.64. p<.01).

A multiple regression analysis was performed using the subscales of learning strategy and lecture attendance as predictors of the criterion variables of students' academic performance. First, the variance inflation factor was considerably lower than 5.0, indicating that multicollinearity was not a problem (O'Brien, 2007). The results of the regression analysis are presented in Table 3. Two of the four aspects of learning strategy and lecture attendance were significant predictors of academic performance (F [5, 477] = 59.49, p < .01). The predictors in this model accounted for 37.8% of the variance in academic performance. This model demonstrated that lecture attendance and test anxiety were the strongest and weakest positive predictor of academic performance, respectively. Furthermore, learning disturbance was the only negative predictor of academic performance.

	Mean	SD	1.	2.	3.	4.	5.	6.
1. Learning learn disturbance	2.86	.61						
2.Test anxiety	2.74	.74	.73**					
3.Self-regulated learning	3.03	.60	.06	.24**				
4.Self-efficacy	3.22	.67	15**	09*	.64**			

Table 2: Mean, standard deviations, and correlation coefficients of measured variables



5. Lecture attendance	74.83	7.25	05	.00	01	02		
6.Academic performance	51.72	16.32	12**	.00	.06	.07	.60**	

*p<.05; **p<.01

 Table 3: Summary results of multiple regression analysis with learning strategy scale as predictors of students' academic performance

Predictors	Academic performance						
	В	β	t-value				
Lecture attendance	1.34	.59	16.47**				
Learning disturbance	-4.73	18	-3.26**				
Test anxiety	3.03	.14	2.43**				
Self-regulated learning	32	01	23				
Self-efficacy	1.96	.08	1.64				

*p<.05; **p<.01

Discussion and Conclusion

Considerable concern has been expressed regarding students' lack of preparation leading to students dropping out of college. Although students' learning habits and strategies are highly related to their academic performance, a recent literature review revealed no examples that focused on the use of learning strategies to increase academic achievement in students at risk of dropping out of college (Renzulli, 2015). Therefore, this study identified learning strategies uniquely present in students with low academic performance and revealed key factors that require support to improve their student experience and retention.

The current results indicate that a learning strategy scale has high-quality reliability and validity in the assessment of university students' skills, attitudes, and learning behaviors regarding learning. Content validity is a critical factor in identifying the concept of measurement and supports the construct validity of the instrument. Furthermore, EFA offers an opportunity to develop and evaluate scales when using relatively untested population (Hair et al., 1998, pp.99-109), and the results of the EFA in this study also indicated that the factors of the structure of a learning strategy are suitable to measure college students' learning strategy.

The results showed learning disturbance and test anxiety were predictors of academic performance and confirmed that the factors associated with academic success include students' negative thoughts. Although researchers have confirmed that negative automatic thoughts (e.g., test anxiety) and worries are negatively related to academic performance (Diaz et al., 2001; Živčić-Bećirević, 2003). Our results demonstrate that learning disturbance was a significant negative predictor of academic performance, and the findings agree with findings we observed in the literature. Notably, test anxiety is a positive predictor of academic performance in this study. The findings of this study agree with Pekrun (1992) and Schwarzer and Jerusalem (1992), who have opined that exam anxiety can either foster or inhibit a students' exam performance.

The relationship between exam anxiety and exam performance on those exams was first investigated by Sarason (1958), who observed a negative relationship—higher test anxiety was observed to be positively correlated to lower exam performance. However, Sarason also observed that highly examanxious individuals were more self-critical and more likely to experience performance-interfering



worry during examinations than individuals who observed to be low in exam anxiety (1975, 1984). There is a positive relationship—higher test anxiety was observed to be positively correlated to higher exam performance.

Furthermore, students' lecture attendance was demonstrated to play a critical role in school (Fadelelmoula, 2018). The study demonstrated that academic performance is positively influenced by lecture attendance, and this finding seems compatible with Alghamdi et al. (2016). However, Alghamdi et al. (2016) asserted that the causes for absenteeism might be unfavorable teaching strategies, early-morning class, part-time jobs, and unconducive interpersonal relations. A comprehensive attendance management system should include attendance monitoring, prevention, and intervention components, and the intervention strategies should include services such as mentoring, personal counseling, credit recovery, home visits, and referrals to local social service agencies.

Notably, the most participants of this study were freshmen. The first year of college continues to be the most critical period for student. Students are more likely to withdraw from college not only when they receive poor or failing grades, but also when they perceive a sharp decline in their academic performance relative to grades previously attained (Getzlaf, Sedlacek, Kearney, & Blackwell, 1984). Therefore, one way in which colleges can improve the academic performance of first-year students is by increasing their utilization of campus support services because of a strong relationship between utilization of campus-support services and persistence to program or degree completion (Chruchill & Iwai, 1981).

In summary, the relationships between two of the four dimensions of a learning strategy (learning disturbance and test anxiety) and academic performance are critical because they contribute to identifying the factors of learning. However, the absence of a significant relationship between the other dimensions of learning strategies (self-regulated learning and self-efficacy) and academic performance in this research is therefore of concern and should be investigated using novel approaches, such as a longitudinal study. Notably, this study was limited by the specific group, small sample size, and not including student academic level and other factors (e.g. teaching method) that might influence student performance on exams. The limitations should be considered in educational practice and in further research on predictors of academic achievement.

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Exploring the Implementation of Curriculum Quality Audit: The Case of Bukidnon State University, Mindanao, Philippines

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ABSTRACT

This study investigated the practices of Bukidnon State University, College of Education (COE) in its implementation of the Curriculum Quality Audit (CQA) Cycle during the calendar years 2017 and 2018. The researcher utilized a qualitative research design, using the narrative-thematic analysis method. Triangulation was used to gather data through open-ended questions, focus group discussion, and document analysis. It was administered to COE faculty, teaching Professional Education courses. The findings revealed that in the seven stages of the CQA cycle, the practices are described to be coordinated and informed, task-oriented, rigorous and collaborative, designated, evidence-based, iterative, collegial and consultative, and cyclical. Challenges encountered were also revealed which include difficulty in managing time, inadequate monitoring and unsustainable implementation, insufficient understanding of the complexity of the Philippine Professional Standards for Teachers (PPST) language and audit tools, difficulty in motivating the faculty, and difficulty in sustaining the iterative nature of the CQA. The findings of this study suggest the formulation of policy on the institutionalization of CQA in the College of Education.

Keywords: Curriculum Quality Audit, Implementation, Philippine Professional Standards for Teachers







Introduction

Curriculum Quality Audit (CQA) has been considered a best practice in curriculum development and implementation. It provides the assurance that standards are aligned with the course content, activities and assessment (Arafeh, 2016). CQA is an outcome-based, meticulous audit process, comparable to international practices that can be used to both develop new and review existing pre-service teacher programs, assuring the alignment to nationally adopted standards. It is a form of curriculum mapping and has been indispensable in this current era of standards-based reform and accountability.

In a global perspective, universities worldwide are expected to develop graduate competencies regarded by the completion of university qualification. Moreover, countries are now experiencing a proliferation of curriculum change which further triggered changes in other areas of educational practices (Amimo, C, Bosire, J, & Role, E, 2015). With the demands of developing graduate competencies, mechanisms are implemented upon the teacher education program (Parkes, 2013), and assurance for quality of teacher education curriculum has drawn the attention of policy makers, curriculum designers and academia (Dhull & Sangeeta, 2018).

In the Philippines, when the k to 12 Reform (Republic Act 10533) was institutionalized for Basic Education, the landscape of teacher quality requirements has also changed as it warrants a supportive focus on higher education, ensuring that Teacher Education Institution (TEI) graduates are qualified vis-à-vis the standards, the PPST. Henceforth, Bukidnon State University (BukSU), committed to re-examine its teacher education curriculum through the lens of the CQA.

Rarely has research focused on the processes and experiences transpiring during the implementation of curricular innovations such as the CQA. Moreover, the globally increasing concern on curriculum innovations and the escalating criticism on university-based teacher education, situated the teacher education curriculum into scrutiny (Conchran-Smith, 2004). Thus, the need to document the conduct of curriculum innovations like CQA in Higher Education Institutions such as BukSU, was perceived with the aim of providing an evidenced and researched-based recommendations for policies gearing towards the assurance of curriculum quality, more specifically in the development and revision of teacher education curriculum that adheres to national standards.

Framework of the Study

This study is anchored on the CQA Cycle of the Philippine Normal University-Research Center for Teacher Quality (PNU-RCTQ, 2017). It provides pre-determined and established stages (figure 1) that offers this study a basis for the procedural exploration of the practices of BukSU on its implementation of CQA. The cycle includes the following stages:



Figure 1: Stages of the CQA Cycle Source: Philippine National Research Center for Teacher Quality (2017)



Capacitating Faculty Members- Stage 1, involves the conduct of seminars, workshops and trainings that would equip the participants about the nature, concept, constructs and technicalities of the CQA.

Mapping of Courses to the BTIs- Stage 2, components of individual courses specifically the learning outcomes, teaching and learning activities and assessments are mapped against the PPST, using different audit tools.

Collation of BTI Coverage for All the Courses in the Program- Stage 3, combining the results of the individual audits to reveal the program coverage.

Identifying the Gaps and Under-and-Over Representation- Stage 4, the process of identifying the competencies/skills that are not taught or even not taught in the kind of depth needed and to answer whether or not the desired and established outcomes from students and the actual outcomes that are being developed.

Formulating of Ways to Respond to Gaps, and Under-and-Over Representation- Stage 5, refers to the mechanisms undergone by the College as to arrive to solutions to the ambiguities identified.

Consultation with the Course Teachers- Stage 6, includes schemes conducted to meet and inform the individual course teachers.

Revising and Amending of Courses- Stage 7, includes documentary evidences of BukSU in looking into evidence-based practice of the actual revision of courses.

Apparently, the cycle operates contextually, with the research instruments constructed to document practices and challenges patterned from the seven stages.

Educational change theorists, such as Fullan & Pomfret(1977), postulated that due to the complexity of the implementation phase, factors that can impact educational change and innovations are numerous. These include, professional development, implementer's participation in decision making, resource support, etc. Moreover, the success of implementing innovations in a system also requires leadership and teamwork, individual learning and commitment and shared vision (Fullan, 1992; Hall & Hord, 2010). Consequently, being implemented not just by the school curriculum specialist but by the entire COE faculty, it is inherent to explore all the processes and activities of CQA from the viewpoints of the implementers.

Meanwhile, studies on educational change argue that a smooth and non-problematic conduct of innovations couldn't be expected; leaders should constantly monitor the implementation process and provide assistance if needed (Louis & Miles 1990; Spillane, Reiser, & Reimer, 2002). This study on implementation of CQA also documented challenges encountered by the faculty and college CQA team. As Darling-Hammond (2016) emphasized, HEI implementation of curriculum innovations deserved to be explored especially that teacher education is a vital ingredient in effective teaching. Challenges encountered and experiences showing actual implementation practices shall provide the basis for the formulation of a policy to ensure the proper implementation of the teacher education curriculum through CQA.

Objective of the Study

This study explored the practices in the implementation of CQA in the College of Education (COE) of Bukidnon State University vis-à-vis the seven stages of the CQA cycle. It aimed to identify the challenges encountered by both the faculty and the local CQA team. Further it aimed to come-up with policy recommendation to strengthen the conduct of CQA and the implementation of the Teacher education curriculum.

Methodology



The study employed a qualitative research design using narrative-thematic analysis. According to Reissman (2005), narrative-thematic analysis gives exclusive focus on the content, keeping the story intact. Interest lies in the content of speech, analysts interpret what is said by focusing on the meaning that any competent user of the language would find in a story. Thematic meanings and understanding the 'point' of the narrative are emphasized.

It was conducted at BukSU, Malaybalay City, Bukidnon. Specifically, in COE, the flagship program of the university. BukSU is a member of the National Network of Normal Schools in the Philippines, It has been serving as a teacher-training institution since 1924 and has undergone different shifts and transitions of Teacher Education Curriculum. COE, being awarded as Center of Development for Teacher Education, has committed to submit its different Pre-service Teacher Education programs into the CQA audit process to align with the new teacher quality competency framework, the PPST. COE, has a total of 37 faculty wo are teaching professional education courses. There are two-groups of participants in study. The first group was purposively selected as to the COE faculty teaching Professional Education courses in the school year of the time of study. The second group of participants were the local-resident CQA team who have undergone various activities with PNU-RCTQ.

To gather the data, a set of open-ended questions were formulated to answer the research objectives and administered to twenty-three (23) professional education faculty. To substantiate and validate responses collected from the open-ended questions, Focus Group Discussion (FGD) was conducted. Seven (7) of them were also participants. The data gathered from the open-ended questions and FGD were analyzed using the transcription of responses in an accurate and objective manner. The significant statements of the respondents were framed and clustered into themes that captured the meaningful units associated with the practices in the cycles and the challenges encountered. Documents available were also analyzed vis-à-vis the stages of the CQA cycle. The contents/questions of the research instruments were patterned from the stages of the cycle and are content validated by local-resident CQA specialists.

Findings and Discussions

A. Practices of the College of Education in the Implementation of the Curriculum Quality Audit Coordinated and Informed Process. Based on the answers provided by the participants, it was gleaned

that CQA in the capacitating stage, is an informed process, as the faculty received capacitating activities through the campus-based/university level seminars and workshops facilitated by the COE local-resident specialists and some invited specialists from PNU. This scaffolding process was mainly facilitated by cascading of trainings from the pioneering faculty sent to PNU-RCTQ then to all the COE faculty. Such practice is evident in the answers of the participants of the focus group discussion, with a participant saying:

"PNU made sure that the collaborators would understand the process...... so there we series of conferences, there were workshops that were designed to make sure that the identified experts, which actually formed the core team would grasp the whole process..... so in the series of orientations among the local participants, it was not difficult because we were also duplicating what has happened and has transcribed the orientations done by RCTO."

This stage was also seen as a coordinated process. COE extended the conduct of its capacitating activities to the other colleges of the university. To validate the responses, the researcher analyzed available documents such as the documented proceedings, attendance and training design/toolkit of the capability building conducted. It was further found out that, the COE were to invite 78 faculty from the different units/departments of the College of Arts and Sciences (CAS), which is its service provider for General Education and Major courses; and 2 faculty from the College of Nursing(CON), which is the college's partner for the health and wellness courses.

Matrix 1 shows the generated themes of the practices of the BukSU- COE per stage of the CQA cycle.



Stages of the CQA Cycle	Generated Themes
Capacitating Faculty Members	coordinated and informed process
Mapping Courses to the Beginning Teacher Indicators (BTI)	task-oriented, rigorous and collaborative process
Collating BTI Coverage for All Courses in the Programs	designated task
Identifying Gaps, Under-and Over- Representation	evidence-based process
Formulating Ways to Respond to Gaps, Under- and-Over-Representation	Iterative process
Consulting Course Teachers	collegial and consultative
Revising/Amending Courses	Cyclical process

Matrix 1. COE Implementation Practices vis-à-vis the stages of the CQA Cycle

Task-oriented, Rigorous and Collaborative Process. COE, upon the conduct of the second stage of the cycle, has developed mechanisms to facilitate the task of mapping all the subjects. The practices are seen to be task-oriented. With the task of mapping the courses, focal persons for each CAS program (mostly the program heads) worked together with the core specialist and the data manager in the submission of outputs. This result reveals that the College has mapped all the subjects of all its specializations as also shown by the availability of the accomplished CQA forms, heat maps, basic and differentiated matrix in the college repository on-line account.

Mapping also became a collaborative endeavor as the college created clustering scheme of grouping faculty to work on the audit of the courses. Participant's responses all indicate how the scheme was done, as Participant A said:

"The schemes implemented I think was grouping together by majors and I remember ma'am ... and ma'am... putting together the names of experts and the core team together with faculty who's still learning the process to be able to really guide them. And then, what else did we do, I think all the faculty were part of the mapping..."

This scheme increases collegiality and collaboration, which supports the claim of Uchiyama and Radin (2009) that curriculum audits promote collaboration and staff relationships which the individual teaching specialisms have tended to fragment. With the clustering of teachers in mapping the curriculum, teachers were able decide and agree on what indicators their courses have covered. It increased accountability and collaboration to the result of the audit. This verifies the statement of O' Donoghue (2007) that when faculty do not have inputs/contribution in the implementation of an reform, they will not gain the sense of ownership to it and will gradually decline commitment.

As an output requirement of BukSU, mechanisms done for this stage revealed to be task-oriented and systematic towards the submission of deliverables on the timeframe given. Aside from the clustering of teachers, CQA forms, audit matrices and coverage/heat map were also accomplished. Answering the question "What component of the syllabi is mapped to the Beginning Teacher Indicators (BTI)" represents the tasks of the course teachers in accomplishing the audit tools. Significant statements from the participants reveal the practice/action done in mapping the course.

"I would very much recall the BTI heat map where you have to shade according to partial or full and then we also did the differentiated audit, which was differentiated audit, the existence or non-existence 1-0-1-0" - Participant D

The document analysis of the audit tools reveals the truthfulness of the claim of the actual curriculum mapping done. The examined accomplished tools comprise the entire package of the courses of the different programs in the college.



Designated Task. In the stage of collating the BTI coverage, individual audits were compiled into general audit matrices which provide an evident, visual representation of what the program covers. Significant statements of the participants seemed to point out that in the conduct of this stage, the college data entry team/person mapped individual subject's coverage into a program audit matrix. In the college of education, this is the identified Data Manager. Aside from the Professional Education courses, the college also performed collation of the BTI coverage of the individual courses of the different specializations (ex. Heat map for English, ECE, Social Studies program are also available). The collation done produced a summarized map that indicates how frequent an indicator was covered. This was derived from participants' responses:

"After the individual audit of the courses, there was a summation of all the data. So we were able to put that on a general map, which now comes out as a heat map where we can see the extent of the BTIs being covered in all the courses, because this is now coming in a general summarized sort of map or chart or graph."

The accomplishment of the audit matrices in this stage provided a holistic, visual view of the program's coverage. It enabled the evidence-based review and analysis of BTI coverage at the program level. Significant realizations were sought from the participants after they were able to collate the BTI coverage, with statements such as:

"And seeing the bigger picture, so when you map everything, you get to realized that each subject has its role not necessarily that you have to hit everything."

Joyner (2016), in a review of curriculum maps, showed that individual courses are not expected to cover the entire set of an established competencies, yet the curriculum as a whole including its subject composition. This accentuates a carefully planned and developed curriculum with due consideration on the composition of its courses, taking into reference the graduate competencies expected of its products.

Evidence-based Process. This stage is mainly done by program heads and schools administrators, but relevant discussions among the faculty would also increase reliability in the process. Since this process is performed by the CQA team, BukSU did a curricular development work with the evaluation and critiquing on-site audit work. CQA, being an evidence-based, documented process, underwent critiquing of the accomplished audit tools and collated audit matrices. Significant gaps, under and overrepresentations were revealed.

The availability of documents such as the Report on the Outcome-Based Teacher Education Program: Curriculum Quality Audit Curricular Development Work and the CQA Evaluation Panel Feedback reveals that this stage was done by the sending and bringing of audit output to external evaluation panels. This further support that COE, in the identification of gaps, under-and-over representations in its syllabi employed an evidence-based analysis of its documents.

Meanwhile, in the matrices submitted to external panels, it was found out that over-representations were present when some subjects covered too many BTI and when a certain BTI was mapped heavily while others were not even covered. As an evidence –based practice, available document such as External Panel Evaluation Feedback was analyzed to validate that gaps were found by really looking into the evidences, the accomplished audit tools. The statement below was lifted from the document sent by external panels.

"Many CQA forms listed topics without information that explicitly articulated the relationship(s) to the BTIs".



Some of the participants' responses illustrated the gaps found by the evaluation panel which can be attributed to the personal biases of the teachers teaching the subjects. As Participant B said:

"When we were doing the audit, like in the very first time we were auditing, the faculty were actually thinking that, they're auditing themselves, and not the program, and so, coupled with emotions, and guilt, the same time, we would want to hit everything..."

The tendency to inject personal bias is a common lapse in filling-out the audit tool. As gleaned from the participant's responses, several instances happened when they audited their courses and mapped the coverage based on practice and not on what is written on the syllabus. This turned out to also be a gap because CQA is an evidence-based procedure.

Audit tools have helped the faculty, specialists and external evaluators to come up with conclusions on the gaps and the under-and-over representations in the individual courses and significantly for the Professional Education program. Figure 2, a sample CQA form, was analyzed to validate the responses on the theme that identification of gaps is an evidence-based practice.



Iterative Process. It was observed that the implementation was iterative with the number of times to revisit, review, and re-accomplish forms to incorporate the different recommendations in the external evaluations to address the gaps, under-and-over representations found. This iterative process can be explained by the re-auditing of the courses but this time, with the inclusion of segment for inter-coders. By requiring inter-coders, the bias auditing as one of the gaps, which resulted to the over-representation of too many BTIs covered, can be addressed when the process has to undergo two-three discerning eyes, which also increases inter-coder reliability. Figure 3, shows how iterative practice happens as the form shown in figure was remade with the insertions of intercoders. This practice is also captured from the participants actual statements.

1.1.1	, 1.2.1, 1.3.1, 2.2.1, 2.4.1, 2.5.1, 2	.6.1, 3.3.1, 4	.1.1, 6.1.1,	6.2.1, 6.4	.1				
Cou	rse Structure and Content								
Week	Topics	Coder	Intercoder 1	Intercoder 2	Main Issue	Resolution	Differentiated Audit	BTI	Coverage
							I	Р	F
1-3	 I. The Social Dimensions of Education Consensus theory & structural functionalism Conflict theory Various interactionist theories 	CLO 1; 1.1.1	1.5.1 2.2.1 3.4.1 CLO 1, 2,3	CLO 1; 1.1.1 6.1.1 6.3.1		1.1.1 1.5.1 2.2.1 3.4.1 6.1.1 A, B,C		~	
4-6	II. Four Pillars of Learning Learning to know Learning to do Learning to live together Learning to be	CLO 1 & 2; 1.1.1, 1.2.1 2.5.1 6.1.1	CLO 1, 2, 6 1.1.1 1.2.1 2.3.1 6.4.1	CLO 1 & 2; 1.1.1, 1.2.1 2.4.1 2.5.1 6.1.1		1.1.1 1.2.1 2.3.1 2.4.1 2.5.1 6.1.1 6.4.1 A, B, C		~	



Figure 3. Revised CQA form Source: COE, Data Manager

The re-auditing of courses with inclusion of elements as expressed by the participants served as an important process that had to undergo scaffolding, the revision of not just the CQA tools but the courses. The Curricular Development work participated in by the CQA team in this stage produced exemplar CQA forms which became the basis of making the Exemplar Syllabi. These exemplars were brought to BukSU for the revision work of the rest of the courses

Collegial and Consultative. Responses reveal that there were consultations done in varied ways. A large-group re-echoing of the proceedings during the identifying and formulating ways to respond gaps, under-and-over representations session, was held during a faculty meeting. Faculty agreed to conduct the practice of working by clusters which was made already in the mapping stage. This can be seen by the statement of Participant A:

"We were already aware of who are the faculty that we have to work with and what subjects we are supposed to audit. So there really was no problem doing that because we were already guided at the very beginning who we're going to work with"

Another practice of consulting the teachers response is the one-on-one consultation between the CQA team and the teachers assigned to audit the Professional Education subjects. One response from the participant that captures the researcher's attention is Participant B's statement:

"we are all part of the whole process so there were no problem in communicating as to the needs and the next step to take because we were all part of the process from the beginning"

Their statements illustrate the proper conduct of the consultation stage where it can be gleaned that in a TEI like BukSU COE, the common vision of aligning the curriculum with the standards especially in the stage of consulting course teachers is done in a collegial manner.

Cyclical Process. At this stage, Curriculum Audit tools and the course syllabi are revised, integrating the graduate competencies stipulated in the PPST and with the consideration of the constructive alignment of its components. This would give assurance that the revised courses to be provided to the pre-service teachers are highly aligned to the nationally-validated standards for teacher competencies, the PPST. This highlights the idea of Arafeh (2016) that alignment of the language in the components of the syllabus namely, the outcomes, activities and assessments, ensuring that it reflects standards are considered best practice in curriculum development.

The College of Education, as captured by the responses of the participants, implemented mechanisms and schemes to facilitate the revisions of the courses following the exemplar outputs approved by RCTQ. All the participants accentuated that for this stage, they did the actual revisions of the parts of the syllabus namely: course descriptions, course outcomes and desired learning outcomes.

"I did revision of the syllabus such as the activities, assessment, the topic content, and learning outcomes."

Revising entries to the audit tools was made with the aim of reflecting these revisions on the actual

syllabus. Statements from participant's responses expressed that syllabus revisions were made but were

still not fully done.

"the scenario in BukSU is while we have gone through the CQA using the old curriculum, the problem lies in the new subjects offered and so as mentioned by ma'am while-the good part was we are conscious already of these competencies and so while there is not yet a formal-like



a sit-down session on-on writing this-the syllabus of the new curriculum, I-I believe the teachers are already conscious of these indicators that would need to be touched and focused in the new subjects offered."

This supports the theme observed which is, revision is still a work in progress which can highly be attributed to the feature of CQA which is cyclical. Document Analysis findings would support that mechanism such as syllabus calibration was already implemented, yet, syllabi were still half-revised.

B. Challenges Encountered in the Conduct of Curriculum Quality Audit

Challenges, which refer to the situations that impede the implementation of CQA was also explored in the current study. As Shilling (2013) contented that due to the complexity of the implementation of curriculum mapping, factors that can positively or negatively impact change can also be numerous. The conduct of CQA as a new curricular innovation also brought challenges especially to the course teachers as the front-liners of curriculum implementation. Change theorist in the area of curriculum cautioned that change cannot be viewed as a straightforward, linear process, due to the factors and challenges that need to be addressed.

Data gathered revealed problems encountered by the faculty. Most of the faculty agreed that timemanagement is a challenged encountered. One participant answered that

"Time was of the essence because of the numerous amount of responsibilities handed to us, we compromised the importance of doing it for the purpose of doing it."

The challenge on time-management caused some of the gaps. Because the faculty were not given ample time to review their subjects taught, conclusions into course coverage indicated in the audit tools were made without thorough judgement and considerations. If the faculty had time allotted only to the auditing of its courses, this procedure might have been done better and systematically. The tasks of auditing their courses is done in the faculty's regular office hours together with the many other paper work and deliverables. Thus, the audit process, as what a participant responded to, was done for compliance and submission purposes only. This can be further deduced by a participant's statement:

"Assignment is given along with other responsibilities. There must be a date set for the outputs"

The lack of mastery in understanding the complexity of the PPST language and audit tools was also revealed as a common problem. There is a complexity of the BTI that every auditor/reviewer has to be equipped with. The PPST framework is particular of the language of the competencies expected from pre-service teachers. This is why the capacitating activities include topics on understanding the PPST, complexity of the BTI, unpacking of pathways and lexical patterns of the BTI. Although capacitating activities were provided in the initial parts of the program, it was still found that the faculty need training on the language of the BTI.

Understanding the technicalities of the CQA process also requires time. The case of some faculty, being unable to fully grasp the complexity of the BTI, was also caused by their lack of time to unpack the pathways of the language of their syllabus against the corresponding indicators in the PPST. Since the capacitating stage is one of the two-shot events conducted with topics jam-packed in two days, there was a minimal focus on the technicalities and sufficient workshops and hands-on activities. As seen in the program, topics on the language of the PPST, unpacking BTIs and the pathways were just allotted with a range of one to two hours. This is not enough to understand the 37 indicators, especially that PPST is a new language and with the fact that there is big population of newly hired teachers in the college of education who are not acquainted with the NCBTS where the PPST was anchored. One participant shared that:

"Some faculty also find it hard to fully understand the language of the BTIs since not all were trained with NCBTS the main anchorage of the PPST."



The conduct of a one-shot or a two-shot event was seen to be insufficient in terms of assuring the development of capacities among faculty to undergo the entire cycle work of CQA. This result is similar to the idea promoted by Shilling (2013) that continuous learning opportunities should be offered to constantly train newly hired teachers in curriculum mapping processes and procedures, and to address the emerging challenges of implementation (Hale & Dunlap, 2010; Yuen & Cheng, 2000).

The significance of going back to the problems associated with building a strong foundation in the first stage of the cycle specifically that this stage involves people, points to the decisive role of this individual in the change process. According to Hall and Hord (2010), "organizations adopt change – individuals implement change…successful change starts and ends at the individual level. An entire organization does not change until each member has changed".

Challenge on inadequate monitoring and unsustainable implementation was found to have existed. Responses reveal that the lack of adequate mechanism to monitor the conduct of CQA and the implementation of the teacher education curriculum has contributed to why certain stages/processes in the cycles were not done well. This is seen in the statement: "*There were no mechanisms for its sustainability in the college.*" The problem found in the revision stage wherein the CQA team did most of the revised audits can also be associated in the absence of a monitoring scheme. Since the participants expressed that time is a factor in their own auditing, then the absence of a mechanism to assure that audits were made resulted to the outputs done for mere compliance.

The CQA team members also encountered challenges as they were assigned to lead the CQA on-site development works in BukSU. The load of work and the nature of rigorous, iterative, coordinated and task-oriented features of CQA as revealed in the audience's responses necessitate systematic and sustainable administrative support and leadership from the designated individuals.

During the focus group discussion, Participants A and C both agreed that motivating the faculty has been a challenge. They said:

"I am ambitious to look at every subject, but my power is only for maybe two or three subjects. So the challenge there is how would I invite my co-teachers to sit, do the amendments. The challenge there is the motivation."

"I think one of the challenges that we faced was asking some people to really do it with you."

It was found out that although clustering of teachers was done in the early phase of the CQA, sustaining their participation until the revision stage was not realized. In the documents analyzed, it was seen that most of the revised CQA forms, heat maps, basic and differentiated audit forms were accomplished mostly by members of the CQA team with just a very few numbers of subjects made by the faculty. A compilation of the revised audits, as an output requirement of BukSU has to be accomplished with the timeline given by PNU-RCTQ. This caused the revisions to be done by the CQA team rather than wait for the faculty. This is further seen in the BukSU's Profile and Report, a terminal narrative report submitted to PNU-RCTQ. In this analyzed document, challenges were also explicitly indicated by CQA team member with statements like:

"The diversity of the faculty also posts another challenge on reigning in the attitude problems of faculty members in taking the responsibility seriously towards auditing the syllabi, revising the syllabi, and aligning the syllabi with the PPST and the PSGs. Challenges were met during the call for outputs. Some teachers were not able to submit on time their outputs."

Another problem encountered by the CQA team is the iterative nature of CQA. This challenge stems out from their difficulties of motivating the faculty. CQA being iterative process requires repetitions of evidence-base making/building, reviewing and audit evaluation. When the team had difficulties in encouraging the faculty's participation in auditing, inviting them to repeat



the process incorporating evaluation results was more challenging. Participant A further expressed:

"I think because we know that its still being implemented, there are still changes that are coming, and sometimes, there is really a series of revisions from what you think was already done. So, it's disheartening to know that you've finished everything and you are going to revised again..."

Assuring that the syllabus to be offered the next school years gives challenge to the team as this endeavor requires the faculty to revisit their classroom practices that are not explicitly documented in their written curriculum, thus requiring them further to change and re-align to standards. In curriculum initiatives whose features are new and iterative, the tendency for faculty to resist is to be expected.

The challenge on the iterative process of CQA can be associated with the member's resistance to change. The same has been said by Shilling (2003) in her study on challenges of curriculum mapping where concluded, "it's not really the mapping that teachers don't like, it's more of whether you want to change or whether you want or don't want to change." The tendency for resistance of change is supported by BukSU's narrative report, another document analyzed, directly saying that:

"The challenge also lies within the concept of collaboration in completing the CQA since some teachers found it hard to move out of the old school house of doing a syllabus and moving in into incorporating PPST in the syllabi and aligning the course descriptions, learning outcomes, objectives, and assessment."

With the institutionalization of PPST, new framework of standards has been established. To ensure higher education adaptability, necessary changes to instruction have to be made to ensure adequate teacher preparation. This requires the faculty to change their planning mechanism by considering the graduate competencies to be achieved by the curriculum. This directs the faculty to do curricular planning, specifically, the writing of the syllabus following the principles of Outcomes-Based education which is also a feature of the Curriculum Quality Audit.

Recommendations

With the findings of the study, it is recommended that a policy be formulated to *institutionalize CQA* in the College of Education. Since the study found-out that CQA is a rigorous, iterative and cyclical process, and the conduct of it cannot just entirely rely to educational leaders, institutionalizing it would provide an assurance of increase in faculty participation. Also with its nature being iterative and cyclical, it necessitates the recurrent continuous conduct. Thus, institutionalization would be beneficial.

Considering the challenge on the lack of teacher motivation due to insufficient understanding of the complexities of PPST and the inadequate monitoring and sustainability, the institutionalization of CQA would provide the possibility of officially designating a college curriculum committee whose roles includes; providing faculty capability building and orientations, facilitating the conduct of periodic curriculum reviews and monitoring, and other curriculum development activities to assure curriculum quality. This can also pave a way for the inclusion of "Alignment to National Standards" in the curriculum planning activities stipulated in academic manual's provisions for Curriculum review and development.

In the educational administration perspective, the study also recommends that the institutionalization of CQA require educational leaders to provide sufficient resources such as time and adequate training/education to the implementers. Since PPST is a new framework, the administration may consider the conduct of thorough needs analysis among the teachers, especially the newly-hired faculty regarding their needs/concerns on Higher Education's Curriculum Development requirements.

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1_Paper27

Students' Perceptions of the Lecturer's Role in Management Education: The Case From Vietnam

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ABSTRACT

Based on the need for new paradigms fostered by the European higher education frame- work, this study explores the influence of the lecturer's role on knowledge acquisition and competence development in undergraduate management students at Foreign Trade University in Vietnam. The lecturer's role is analyzed through students' perceptions of the lecturer's ability to build a good relationship and use appropriate teaching methods. This analysis is conducted from the perspective of student-centered learning and theoretical approaches that have emerged in the business field that show a conceptual affinity: the transfer of training and knowledge. Research methods include questionnaire surveys and use multivariate data analysis (Cronbach Alpha test, Correlation and Regression). Data were collected from around 201 undergraduate students studying in Foreign Trade University. The results indicate that the perceived ability of the lecturer to create a good relationship with students positively influences their perception the suitability of the teaching methods used, and the suitability of these methods, in turn, influences the students' level of knowledge acquisition and competence development.

Keywords: Lecturer, Management Education, Knowledge Acquisition, Competence Development







Introduction

Viet Nam's universities is Financial autonomy and undergoing a process of change in which the development of students' competences becomes the central axis to articulate the teaching-learning process, apart from the basic knowledge that the student also needs to acquire, but it also represents a "magnificent opportunity for universities to undertake a reform process that will enable them to adapt to the current social reality, the so-called Knowledge Society" (Montero Curiel, 2010).

Some authors in the field of higher education are concerned about overcoming the idea of an autonomous university and closely analyzing the relationships among society, business, and the academic world (Tynjala et al, 2003). These efforts have focused on the analysis of the relationship between higher education and the knowledge society (Vallima & Hoffman, 2008). In the field of business management, the development of competences has been associated with knowledge management and training. Both of these areas of business management are interested in transmitting knowledge and skills between units and employees in order to achieve better human capital that can do things better or in different ways. Along these lines, although the impact of higher education on personal development cannot be compared with that of training programs, due to the short-term nature of the latter (Vallima & Hoffman, 2008), the analysis of the relationship between higher education and working life could help to define the identity of higher education institutions (Tynjala et al., 2003).

In order to improve knowledge acquisition and competence development, several factors can be considered, due to the significant influence they can have on these aspects. According to Kember (2009), the role of the lecturer is the key to designing and guiding learning activities. On the other hand, innovative methodologies play a key role in competence development (Salas Velasco, 2014), and the suitability of these methodologies facilitates learning. Moreover, the relationship between the lecturer and the student makes it possible to adapt the method to the required learning needs. Although we acknowledge the relevance of the specific effects that teaching strategies may have on knowledge acquisition and competence development, we are particularly interested in the student's subjective overall assessment of the role of the lecturer in the learning process. The role of the student has taken on a special significance because he/she is now the driver of his/her own learning, and the lecturer becomes an instructor who helps the student to study and find solutions to the different problems he/she may face (Montero Curiel, 2010). The change in methodology has made it necessary to rethink learning activities, materials and contexts, and above all, it has required a change in mentality and routines on the part of the lecturer and the student. Therefore, the student's perspective is fundamental to knowledge acquisition and competence development. In this sense, 'serious misunderstandings are likely if teaching staff are unaware of the ways in which students experience higher education' (Richardson & Radloff, 2015, p. 605). However, students' perception of their own learning is not the same as knowledge acquisition and competence development. Thus, it should not be regarded as an indicator of students' learning or actual performance (e.g., Armstrong & Fukami, 2010; Kruger & Dunning, 1999; Sundstrom, 2005). Instead, it is an affective learning measure based on a student-centered learning perspective that involves students' attitudes, convictions, and con- fidence levels about the learning objectives (Armstrong & Fukami, 2010; Giacalone & Promislo, 2013; Sitzmann, Ely, Brown, & Bauer, 2010). In this regard, students' perceptions of their own learning is an evaluation criterion in disciplines such as business, education, and psychology (Dobransky & Frymier, 2004; Lim & Morris, 2006). It is commonly used at the end of a course, when students are asked to rate their own perceived levels of comprehension (Walczyk & Hall, 1989), competence (Carrell & Willmington, 1996), and performance (Quinones, 1995).

Taking these considerations into account, the main purpose of this study is to investigate the influence of students' perceptions about the role of the lecturer on the knowledge acquisition and competence development of undergraduate management students. Thus, the paper contributes to the analysis of knowledge acquisition and competences development in the area of management education from the point of view of training transfer, adopted from the field of management (e.g.,



Botma et al., 2015). There is a conceptual similarity between areas of business management related to the transfer of knowledge and training and the field of education. Therefore, it is appropriate to analyze the role of the lecturer in the knowledge acquisition and competences development of higher education students, based on theoretical approaches to the analysis of professional competences in the business field, as there seem to be important connections between them (Riesco González, 2008). In particular, the article proposes an integrated model that analyzes direct and indirect influences of the lecturer's role on the independent variables.

The rationale of this study was to identify the perceptions of students about lecturer role. The objectives of this study were to determine the relationship between lecturers and students in Vietnam universities.

Literature Review

Knowledge acquisition and competence development in management education

Education is relevant because it allows students to learn and acquire skills and knowledge that will fundamentally shape their behavior (Haveman & Wolfe, 1984). The right acquisition of the right knowledge by students enables them to perform activities and face their professional careers with a more successful approach. Higher education has a qualifying function for the world of work and some other personal spheres, and it is responsible for knowledge transmission and for providing an environment that is conducive to enhancing students' competences (Teichler, 2007).

In the context of the EHEA, the concept of competence has been shown to be a cornerstone of the success of the education process. Competence can be understood as a behavioral potential adapted to a given situation (De Miguel Díaz, 2006). Therefore, learning outcomes should be a set of competences, with each of them including knowledge and skills that the student is expected to dominate and use in an environment different from the learning context (González & Wagenaar, 2003). In this regard, several authors argue that the educational context is now broader, and students should be capable of handling knowledge, updating it, and selecting what is appropriate for any given context (e.g., Fernández, Carballo, & Galán, 2010; González & Wagenaar, 2003). In this regard, Botma et al. (2015, p. 501) consider that, based on constructivist approaches to learning and experiential learning theory, the debate on learning outcomes "has shifted from content to competence".

An important aspect to consider is that the concept of competence in education is strongly linked to professional competence, which may be defined as an effective capacity to successfully carry out a fully identified working activity (Riesco González, 2008). In fact, as Tynjala et al. (2003) pointed out, the differences between school learning and workplace learning are becoming more diffuse. This is reflected by the fact that in recent years the role of universities has gained prominence in corporate training programs, and new pedagogical models (e.g., problem-based learning, collaborative learning) used in higher education have characteristics that simulate authentic working life situations (Tynjala et al., 2003).

Moreover, the students' competence development can be analyzed from the perspective of knowledge transfer, but always keeping in mind that learning cannot be defined as a mere transmission of knowledge (Fernández et al., 2010). Knowledge transfer is one of the central processes of knowledge management, along with knowledge creation (Nonaka & Takeuchi, 1995). Knowledge management can be conceptualized as the panoply of procedures and techniques used to get the most from an organization's knowledge assets (Teece, 2000). Davenport and Prusak (1998) offer a definition of knowledge transfer that involves two actions: transmission (sending or presenting knowledge to a potential recipient) and absorption by the recipient. Likewise, Brachos, Kostopoulos, Soderquist, and Prastacos (2007, p. 32) consider that 'knowledge transfer actually occurs when received knowledge is used by recipients and this use results in changing their behavior'.

As this discussion has attempted to show, the processes described by the literature on training and knowledge management have many connections with the educational process. These



literatures agree that the key to success is for the student to change his/her behavior by acquiring knowledge and the skills to be able to do something with it: in other words, he/ she develops a set of competences. However, they also agree that in order for this to happen, the student must previously have assimilated this knowledge. These arguments lead us to propose the first hypothesis:

H1. The level of knowledge acquisition achieved by the student will be positively associated with his/her competence development.

The lecturer's role in knowledge acquisition and competence development in management education

Students' more important role in their own learning does not mean that the lecturer's role is less important or easier (Fernández et al., 2010). As Botma et al. (2015) suggest, when there is a failure to transfer learning, graduates are unable to show the needed competences. This can occur for several reasons: the failure may be related to the student's characteristics and circumstances, the educational process, or even particularities of the work environment. This article analyzes the lecturer's intervention to facilitate students' development of valuable competences. Botma et al. (2015) point out that the lecturer has to be a facilitator of learning based on the constructivist approach, and he/she has to create learning opportunities that allow students to process and internalize new information and knowledge. Richardson and Radloff (2015) highlight that if students think the teaching staff is not trying to identify student's needs and interests, this will negatively affect their engagement with what they are studying. In fact, university lecturers face the challenge of revisiting their traditional teaching methods, working toward a system where the student is capable of using the knowledge and skills transmitted during the course in carrying out specific activities (Kember, 2009). However, this can be a demanding task for lecturers because of their deep-seated beliefs about their role in the teaching process (Kember, 2009). In addition, it should be noted that, according to Burke et al. (2005), the lecturer's teaching style is one of the variables that has to be taken into account when investigating the conditions for learning transfer.

The role of the lecturer will be examined from the perspective of the bodies of literature mentioned above. It should be noted that the teaching capacity is a multidimensional concept with different facets, such as communication skills and clarity, course organization, student-lecturer interactions, or the lecturer's interest in the course (Nguyen & Nguyen, 2010). Specifically, the role of the lecturer as a manager of relevant aspects of the link that he/she establishes with the students will be studied, along with the suitability of the teaching methods he/she chooses for the course.

Ability to create a good relationship

Although the context of the lecturer in management courses in higher education and that of the trainer in intra- and inter- organizational management courses have some distinctive features, their role has some core similarities that make it possible to bring to this discussion some ideas from the management training literature, where it has already been addressed. Thus, in the framework of management training programs, the responsibility for creating an appropriate environment, in terms of interpersonal relations that facilitate the exchange of information, falls to the trainer. The trainer can project him/herself as a guide or facilitator, creating a climate that reduces trainees' feelings of stress, hostility, and even fear of being open and friendly with the trainer and other trainees (Murk, Barrett, & Atchade, 2000).

The literature on knowledge transfer has also paid particular attention to the relationships established between the parties involved in this process. A fluid relationship may play an important role because it can help to overcome mistakes, forgetfulness, or distractions that may arise when planning knowledge transfer, and that become obvious as the implementation stage develops (Szulanski, 2000). A good relationship between the parties can also produce a willingness to submit detailed documentation that collects part of their accumulated knowledge



(Szulanski, 2000). On the other hand, a difficult or tense relationship is one of the main barriers to internal knowledge transfer (Argote, McEvily, & Reagans, 2003; Hansen, 1999; Szulanski, 1996). Both parties have to work to maintain a good, close relationship, as only this type of relationship provides value because it is necessary for the flow and acquisition of tacit knowledge (Ratten & Suseno, 2006). In this regard, Wathne, Roos, and Von Krogh (1996) confirm the positive influence of the willingness to enter into dialogue on knowledge transfer.

In the context of a university course, the relationship between the lecturer and the student is based on the student's opportunities to interact with the lecturer and the student's participation in class by asking questions, expressing ideas, and debating in the classroom (Kember, 2009; Nguyen & Nguyen, 2010). A high quality relationship between the lecturer and the students can lead to a better analysis of each specific situation, making it possible to intervene by better adapting the teaching methods used to transmit knowledge and skills (De Miguel Díaz, 2006). The better the lecturer-student relationship, the more the lecturer can help the student to understand the knowledge to be transferred from a conceptual point of view. In addition, if the lecturer has the ability to build a good relationship with the student, this can lead to the student achieving an enhanced capacity to process the knowledge acquired and select what is most appropriate in each context, thus completing specific activities. These arguments lead us to propose the following hypotheses:

H2. The lecturer's ability to create a good relationship will be positively associated with the students' level of knowledge acquisition.

H3. The lecturer's ability to create a good relationship will be positively associated with the students' competence development.

H4. The lecturer's ability to create a good relationship will be positively associated with the students' learning motives.

Suitability of teaching methods chosen

The other element to be studied in relation to the lecturer's role was presented in the discussion above. The consolidation of the EHEA has opened up a debate on the renewal of teaching methods (e.g., master classes, class discussions, role-play exercises, case studies). The lecturer should ensure that the methods used are the most appropriate ones for the student to assimilate the new knowledge and develop the competences established in the curriculum.

The training literature has highlighted the need to consider aspects related to the design of the training plan as a key element that will affect the success of knowledge learning and transfer (Arthur, Bennett, Edens, & Bell, 2003; Lim & Johnson, 2002; Lim & Morris, 2006). Teaching methods must present the knowledge and skills to be learned, create opportunities for the students to practice skills and participate actively in the learning process, and, lastly, provide feedback (Salas & Cannon- Bowers, 2001). The use of different teaching methods can foster higher levels of reflection, leading to deeper information processing by the trainees (Salas & Cannon-Bowers, 2001). In the more interactive formats of traditional classes, such as case studies, the lecturer guides the discussion and helps participants to discover new key concepts and practices (Baird, Griffin, & Henderson, 2003). In sum, the degree of suitability of the teaching methods largely determines the effective assimilation of the contents by the students (Arthur et al., 2003; Wells & Schminke, 2001).

However, the training design can also provide the trainee with information about how to develop the selected competences. Training can be designed in a way that provides trainees with the capacity to transfer the learned knowledge and skills to the workplace. In order to facilitate training transfer, some studies have emphasized the need to adapt the training context to the one where the knowledge and skills will be applied (e.g., Lim & Johnson, 2002; Machin & Fogarty, 2003). Thus, training programs that create different contexts for the discussion and application of training contents can help the individual to show the expected behavior (Lim & Johnson, 2002; Machin & Fogarty, 2003).



The suitability of the teaching methods can also be analyzed from the perspective of the literature on knowledge transfer. Thus, each specific transfer process, due to its conditions (type of knowledge, source, and recipient characteristics, etc.), requires the use of one or more specific transfer mechanisms that may not be suitable in different situations (Davenport & Prusak, 1998; Wathne et al., 1996). The level of interaction between the parties generated by the transfer mechanism is a key element to analyze when determining its suitability (Davenport & Prusak, 1998). Methods that favor relationships and exchanges among participants include group discussions, which allow for face-to-face interactions, as well as frequent ex- changes of information (Wathne et al., 1996). The transfer mechanisms should also allow positive interactions between the parties that allow good communication and the resolution of doubts about knowledge application (Nonaka, Toyama, & Konno, 2000).

These arguments can also be contextualized within the framework of higher education to show that when teaching methods are combined properly, they can favor students' knowledge acquisition and competence development. The choice of teaching method involves defining the way the contact between the student and the contents will take place. If the lecturer achieves an ideal combination of various teaching methods, he/she will create a more favorable framework for student learning. The lecturer has various teaching methods at his/her disposal and must organize his/her work specifically to help students to achieve the learning objectives and develop the intended competences, and this can involve choosing and designing activities and tasks for the students (Fernández et al., 2010). Moreover, a fluid relationship with students makes it possible to obtain additional data about their characteristics, providing a solid base for choosing the combination of teaching methods to be used in the course. These arguments lead us to propose the final hypotheses in this study:

H5. The lecturer's ability to create a good relationship will be positively associated with the suitability of the teaching methods chosen.

H6. The suitability of the teaching methods used will be positively associated with the students' level of knowledge acquisition.

H7. The suitability of the teaching methods used will be positively associated with the students' competence development.

H8. The suitability of the teaching methods used will be positively associated with the students' learning motives.

Research methodology

Sampling:

The data was obtained by a survey carried out at Foreign Trade University (FTU), Vietnam with total number of 201 students took part in. Those students come from various educational programs of FTU: International Economics; Business Administration; International Trade Policies; Business languages: English, French, Japanese, Chinese, etc. With 201 questionnaires collected, it ensures reliability according to Hair et al's sampling methods (2006) as well as the sampling method of Tabachnick & Fidell (2007) with the number of samples calculated by 50 + 8 * p. Since FTU has the large proportion of female students, approximately 70 percent, only 25 male students took part in the survey. To get a better comprehension about the lecture's role in students' perception, the sample is chosen from freshmen to fourth year students to get a better insight.

Table 1: Respondents description

		Frequency (%)
Gender	Male	25 (12.4%)
	Female	176 (87.6%)
Academic	1 st year	47 (23.4%)



Year	2 nd year	112 (55.7%)
	3 rd year	35 (17.4%)
	4 th year	7 (3.5%)

The questionnaire

In order to design the questionnaire, we conducted a review of major studies that have addressed the issue under study. The questionnaire included a series of questions related to students' perceptions of several dimensions of the teaching- learning process (see appendix 1). Students were asked to evaluate the increases in their knowledge levels and competence development as a result of participating in the course. Regarding the lecturer's role, the students were asked to give their opinion in relation to the lecturer's ability to create a good teacher-student relationship and the suitability of the teaching methods used during the course (classic lecture, case discussion...).

The competences selected for this study, such as initiative and entrepreneurship or the motivation for quality, are highly valued in the business world. At the same time, they adequately reflect the intention of university programs to teach competences that can be applied in a variety of situations (Tynjala et al., 2003). In order to reduce common method bias and avoid the use of the same word form, which might lead respondents to consistency (Podsakoff et al, 2003), two different types of scales were designed. The scales for the variables "ability to create a good relationship", "suitability of teaching methods", and "knowledge acquisition" are based on agreement (Completely disagree - Completely agree), whereas the scale for the variable "competence development" is based on the degree of increase (very low increase - high increase). In addition, on the final questionnaire, the variable "competence development" was inserted between two of three variables with the same type of scale.

Data analysis method

The authors used multivariate data analysis method to analyze and test the research hypotheses. In order to test the reliability of each construct, Cronbach Alpha coefficients and Item-total correlation coefficients to assess the internal consistency. Cronbach's Alpha coefficient must be at least 0,6 to measure the internal consistency of factors. The factors which have Cronbach's Alpha coefficient smaller than 0,6 are inappropriate and will be removed. The corrected Item-total correlation must be at least 0,3; observed variables which have the total correlation coefficient smaller than 0,3 will be considered as "spam" variables and removed from the scale. After that, correlation coefficient analysis and regression analysis were used to test the hypotheses with statistically significant at 0,005 (OLS regression used to analysis)

Research Result

Scale reliability test

The scale reliability test results are shown by the Cronbach's Alpha coefficients and the item-total coefficient of correlation. The result shows all the scale of factors have achieved internal and reliable consistency, all Cronbach Alpha coefficients are greater than 0.6 and the item-total correlation coefficients are greater than 0.3

	Number of Items	Cronbach's Alpha	Min Corrected Item-Total Correlation	КМО	TVE (%)
ABI	4	.851	.624	.811	69.14
SUI	5	.916	.762	.875	75.27
KO	3	.871	.741	.741	79.98
MO	3	.864	.723	.736	78.67
CD	4	.725	.439	.719	55.71

Table 2: Reliability analysis result



Note: **ABI:** ability to create good relationship; **SUI:** Suitability of teaching methods; **KO:** Knowledge acquisition; **MO:** Learning motives; **CD:** Competence development

Correlation analysis

It is shown in the result table of correlation coefficients that the variables are positively correlated with each other (positive correlation and statistically significant at 0.01 level). All Items will be included in the regression analysis in the next steps.

	ABI	SUI	KA	MO	CD
ABI	1				
SUI	.659**	1			
KA	.609**	.795**	1		
MO	.353**	.399**	.476**		
CD	.366**	.327**	.358**	.425**	1
**. Cor.	relation is s	significant	at the 0.0	1 level (2-	tailed).

Table 3: Correlation analysis result

Regression analysis

The result indicated that ABI had positive effect on SUI ($\beta = 0.604$, p < 0.05), MO ($\beta = 0.155$, p < 0.05), KO ($\beta = 0.572$, p < 0.05) and CD ($\beta = 0.604$, p < 0.191), which means the results accepted hypotheses H2 to H5.

On the other hand, SUI has positive impact on MO ($\beta = 0.260$, p < 0.05), KO ($\beta = 0.744$, p < 0.05) and CD ($\beta = 0.100$, p < 0.05) which accepted hypotheses from H6 to H8. For the H1 hypothesis, it is accepted by the result indicated that the level of knowledge achieved by the students is positively associated with his/her competence development ($\beta = 0.220$, p < 0.05).





* Significant at 10%

** Significant at 5%

Discussion

The regression results also show both factors "Ability to create a good relationship" and "Suitability of teaching methods" have positive effect on learning motives. This proves that better relationship or interaction between the students and their lecturer results in better learning motives. When good relationships between students and lecturers make contact barriers in answering questions and questions during lectures are also removed. Students can easily give discussions or questions about the issues that lecture given. In addition, better learning motives will also be achieved by the teaching methods that most appropriate for the students. With suitability of teaching methods to help students grasp knowledge more logically. Lectures help students understand better when lectures are well designed.

The factor "*Ability to create good relationship*" has positive effect on the lecturer's suitability of teaching methods. This means better interaction between the lecturers and students makes a closer relationship. It makes students gain more access to in-class communication with the lecturer in order to make clear of their doubts about any aspect of the knowledge. Therefore, students can have better understanding about the subject, which leads to better satisfaction about the lecturer's teaching methods.

Knowledge acquisition also have positive relationship with the three factors "Ability to create a good relationship", "suitability of teaching methods" and "learning motives". It can be deducted that lecturer's ability to create a good relationship and the suitability of the teaching methods have direct and indirect impact on students' knowledge acquisition. Having a good relationship with the lecturer results in a better satisfaction with the lecturer's teaching methods. Student's learning motives will increase which results from the good learning environment and the appropriate teaching methods. Knowledge acquisition of students will get better resulted from the positive achievements of other dimensions.

The mentioned factors also have a positive relationship to competences development. Good knowledge acquisition is a good preparation for students after graduation (in applying knowledge to the future job). Besides, creating good learning environment (good relationship with the lecturer) also has effect on the students 'proactivity and increases their adaptability for future career path. The results of this study also show that the factors not only have direct impacts but also indirect positive impacts on development competences.

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1_Paper28

An Effect of Genesis of Stress on the Academic Performance of 1st Year Student in Foreign Trade University

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ABSTRACT

This study assesses the genesis of stress among 1st year student at Foreign Trade University (FTU) in Vietnam and its impact on their academic performance. Research methods include questionnaire surveys and use descriptive statistics, factor analysis multivariate data analysis (Cronbach Alpha test, EFA and CFA). Data were collected from 671 1st year students studying in Foreign Trade University. Result indicates that academic stressors (schoolwork and less vacation), interpersonal stressors (extracurricular groups, family obligations), intrapersonal stressor (bills/overspending) and environmental stressor are direct stressors among 1st year students. The study discovered a statistically significant difference in stress management techniques among the study participants (p < 0.05). The multivariate analysis found that, respondents' reactions when stressed had a significant effect on their academic performance. However, after adjusting for the stressors, having less vacation had significant effect on respondents' academic performance. Meanwhile, the interaction term significantly strengthens for respondents who had sufficient resting time during vacation. Considering the 'extensive and intense nature of demanding curriculum and high expectation at FTU, there is the need for orientation of students on the effect of stress on their academic performance and effective coping mechanisms.

Keywords: First Year Students, Stress, Academic Performance, Foreign Trade University





Introduction

For many university students, university education represents a time of change and new experiences that could lead to serious challenges (Kagan & Baird, 2004). Many first year college students have to be exposed to a complex mix of physical, psychosocial and socio-cultural environment (Oketch-Oboth & Okunya, 2018). Transferring from high school to university means that each student has to adjust to new relationships, new financial demands and new expectations which may bring about severe stress (Papier et al., 2014). Overwhelming burden of information leaves a minimal opportunity for the student to relax and recreate. Stress and depression have been consistently linked to mental and physical health effects. Psychological distress subjects first-year student to various situations with negative implication. The impact of stress on learning is particularly significant in the context of professional education because it has the potential to disturb human functioning, including the capacity to absorb information. High levels of psychological distress among students may contribute to impaired academic performance (Jacob & Einstein, 2016).

Higher education including university plays a crucial role in stimulating a country's economy and empowering young people with the skills, knowledge and attitudes required for the 21st-century workplace (Mason, 2017). In many countries and nations all over the world, university education is regarded as a secured educational path for future prospect. Especially in Vietnam – a developing nation in South East Asia, education in the fields of economics, international business, finance and banking are the most reputable. Foreign Trade University is one of the most famous in Vietnam. First-year students in Foreign Trade University not only have to suffer from distress like other students but also are engaged in stress from being a student in a reputable university. Firstly, Vietnamese people tend to prioritize learning results and outcomes including grades in classes. Secondly, compared with other universities in the same fields and majors, Foreign Trade University first-year students are more competitive and highly expected. Moreover, today, almost all universities in Vietnam have shifted from a formal training program to a credit-based training system. Changes in university-level learning compared to high school and living environment make students encounter many difficulties. That may lead to psychological stress, affecting the effectiveness of students' learning and training activities.

Although minimal amount of stress is desirable and is necessary to spark in a healthy competitive spirit, the undue stress has undesirable impact on students (Salgar, 2014). This results in reduction of students' self-esteem and affects their academic achievement (Sohail, 2013). Therefore, it is necessary to research on factors leading to stress among first-year students in order to ease problem solving of this issue. Stress sources include curriculum, personal competence, endurance and time outside university.

The rationale of this study was to identify the nature, sources, level of stress experienced by first-year students and its effect on their academic performance in a local context. The objectives of this study were to determine the relationship between stress and academic performance among first year students in Foreign Trade University.

Literature Review

Pressure and stress

Pressure and Stress are two concepts which are usually used interchangeably in daily life. However, they are not in fact the same. Arroba & James (1998) distinguishes the two concepts by a simple statement: "Everybody needs some certain amount of pressure to efficiently perform, pressure can lead to stress, but nobody needs stress." In daily life, it is required for human to bear some sorts of demands, whether there are physical demands such as those caused to the body by physical activities or psychological demands such as having deadlines, excessive amount of work or suffering from bad incidents. Pressure is defined as the "aggregate of all the demands placed on individuals" (Ross &Altmaier, 1994) and when facing with it, "stress is the response to level of pressure" (Arroba & James, 1996). In other words, stress happens when individuals have to face with overwhelming situation and they somehow have to face with the anxiety of not having able to handle the outcomes (Campbell, 2006).



Students and stress

In Vietnam, education is a state-run system of private and public institutions managed by Ministry of Education and Training. Educational system consists of 5 levels: preschool, primary school, secondary school, high school and higher education. A distinct characteristic of Vietnamese education is that majority of citizen still favor public institutions in comparison to private ones. In Vietnam, the State controls entrance examination to each level such as National High School Examination or National University Examination. Also, higher education is considered fundamental path for young people to follow in society. For college or university, every year high school students gather to participate in National University Examination, whose results will be evaluated by a committee chosen by the State. Afterwards, the grades will be published and compared to entrance grade by institutions which students have registered prior to the test. Vietnamese society still holds relatively negative judgment on students who "fail" on such test. There is a common tendency for parents to compare their children based on grades of such test, the higher the score, or the supposedly more prestigious university their children attend, the more proud the parents are. This trend leads to various criticism of the educational system and society which stress too much on academic performance, which leads to other social issues such as depression, anxiety, and even increasing high school student suicide rate. Among numerous universities in Vietnam, Foreign Trade University (FTU) is considered to be one of the most prestigious one which always require the top highest score students on National University Examination.

Transition from being high school student to college/university environment for most young adults is usually analyzed as both stressful and struggling, especially in Vietnam. In university environment, students have to practice balancing various demands and pressures at the same time such as the demands of academic performance, developing social connections and also for many young people, the demand of being responsible for financing their own life for the first time (Hudd, 2000). Fox et al (2001) proposes stress-strain theory which states that exposure to different stressors can have negative influence on people's behaviors and health status, resulting in physical or psychological traumas. Even though stress is part of colleague/university experience, researches have addressed the importance of understanding stress, sources of stressors and how students deal with it.

For 1st year student, the transition normally comes with emotional and psychological pressures where they have to adapt to a new physical and social environment with relatively new connections, new financial pressures and new expectations. Leaving high school, many 1st year student experience changes such as change of location, change of social contacts (by leaving home and high-school friends). Various studies have addressed numerous stressors of colleague students but one of the most important source of pressure and stress is academic performance pressure. Globalization and the characteristics of society have highlighted the importance of having excellent academic performance among parents, teachers, other people and students. In Vietnam, according to Hofstede's cultural dimensions, Vietnam ranks high in Power distance (score of 70), low in Individualism (score of 20), high in Long term orientation (score of 57) (Hofstede Insights, 2019). These characteristics form a generation of parents who demands very high academic standards to their children in fulfilment of their own pursuits (Ramli, 2018). In this research, Ramli also stressed that "Academic stress is the most common emotional or mental state that students experience during their studies". Stressors among students stem from different basis (Vogel & Schwabe, 2016). In college and university environment, according to a survey in 6 universities in Vietnam, data shows that 50% of students state that the most common stressor for them is related to academic performance (including grades, tests, volume and difficulty level of assignments) (Nguyen, 2017). Other stressors include Time management, Financial problems, Social life, Moving away from home and Illness with differing impact on academic performance.

Research Methodology:

Study context and design:



This contextual cross-sectional study draws data from a 17-item response, adopted and modified from the Foreign Trade Univertity (FTU) (Renner and Mackin, 1998; Yankey et al. 2017) among 1st year students at the FTU – Hanoi between March and May, 2019. In total, At three campus of FTU, The 1st year student has population of 3850.

Research concepts are measured through 3-5 observed variables evaluated through questions. The set of questionnaires is referenced, inherited from previous foreign studies and translated from English to Vietnamese, through reverse translation to preserve accuracy. After that, with the feedback from research experts in the field and some students, final corrections are made to ensure the appropriate set of questions in research context in Vietnam. The survey is conducted from March to May 2019.

Study context:

This study used 5-point Likert scale to measure the items. Although there are scales that provide more accurate measurement results (Likert 7 points and 9 points), the 5-point scale is commonly used in satisfaction assessment studies and also to reduce grammar misunderstanding. Stressors were assessed using a 5-point Likert response scale. The stress construct was measured by 17 items adpted from Hayford et al in 2018.

Code	Content
1	Schoolmate behavior (Rude, thoughtless, sexist/racist)
2	Invoices to pay/Over spend
3	Participating in social activities including dating, partying
4	Extracurricular activities of school, friends
5	Family: obligations or family activities
6	Poor sleep quality or sleep problems
7	Physical: incomplete physical condition
8	Food (meals are not attractive or unhealthy)
9	Get up early (for class or work)
10	School work (course duration, long-term assignments, practical exercises, boring / hard reading materials).
11	Lack of money
12	Distance from place of accommodation to class
13	Supervisor - teacher (unfair, demanding, not ready)
14	Examination (revise, tests)
15	Not much time off
16	Not satisfied with classrooms
17	Not satisfied with facilities

FTU offers credits program which normally takes students 4 years to complete. In the program, students are graded based on Grade Points Average (GPA). GPA will determine rank of students and is believed to be a vital factor to obtain decent future career. As one of the most competitive university in Vietnam (from competitive entrance to demanding curriculum), FTU students are assumed to maintain their high academic performance by parents and also by their own expectations. Table 1 illustrates Grading system of FTU. Considering very high expectations of FTU students, the effect of stress on academic performance has to be very meticulously evaluated. Ludwig et al (2015) affirmed that for 1st year student, academic stress holds highest negative effect on students.


Numerical mark	Letter Grade	Grade Point	Interpretation
8.5-10	A	4	Excellent
7-8.4	В	3	Very Good
5.5-6.9	C	2	Good
4-5.4	D	1	Average
Below 4	F	0	Fail

Table 1: Grading system of FTU students

In conclusion, current design of Vietnamese educational system, accompanied by high expectations from society to have excellent performance generates stress for 1st year students. Moreover, the research takes place at FTU - one of the most competitive university in Vietnam, academic performance is expected to be even more rigorous.

Pilot test and Reliability

A pilot test was conducted among 50 in 1st year students from the FTU Hanoi, to ascertain the content validity and appropriateness of the research instrument. These students were independent of the study sample hence their responses were critical in modifying the instrument. Experts in stress and Officer from Undergraduate trainning management of FTU then reviewed the questionnaire after the pilot test. Based on their feedback, items used to assess stressors among respondents were reduced from 17-item response. A reliability analysis test was conducted to assess the item interrelatedness (Cho and Kim, 2014) and index of internal consistency (Christensen et al. 2011). The 17 items demonstrated improved reliability (α = 0.827).

Data collection and sample:

Study participants

A cross-sectional study design was used to collect data from undergraduate students studying at the Foreign Trade University (FTU) – Hanoi. FTU has three campuses. The selection of this campus was based on its diverse academic cohort, its large number of students, and its size as the biggest of the three campuses. In all, 671 first-year students (128 men and 543 female students) from different undergraduate program participated in the study. The study was approved by the Foreign Trade University.

Sampling

To be included in this study, students had to be enrolled in a first-year course at FTU. All students were approached in their lecture halls during weeks 10 to 13 of the second semester of 2019. This period were selected because they are the two most stressful of the 1st academic year. All of the students were informed about the purpose of the research at the beginning of their lecture and a self-administrated questionnaire was distributed at the end of the lecture. Over the 8 weeks data collection period, 2700 first-year students at FTU Hanoi were approached. Of these students, 671 agreed to participate, making the overall response rate of participants 25%.

Besides respondents "sociodemographic characteristics (Gender, accommodation status, time for excercise and smoking or not), respondents" assessed their academic performance by the question: how would you rate your academic performance? "with a five-point response scale ranging from "(1) excellent, (2) very good, (3) good, (4) fair and (5) poor". From each cluster, a simple random sampling technique was used to sample participants in proportion to their class population. In all, 671 respondents were sampled from a total of 2700 1st year students from FTU Hanoi.



Table 2 below presents the basic information of 1st year students who participated in the study. Of the participants, 19.1% (128) were men and 80.9% (543) were female students. More than half (59.9%) of the participants were living on their own, with 8.6% living on campus and 31.4% living with family. A large majority (98.1%) of the participants were not smoking with almost equal numbers among men and female students. About *"Time for excercise"* of participants were exercise at a 1-2 times/week (36.7%) or over 2 times/week (24%), whereas others were not excercise.

		Number of student	Percent
Candan	Male	128	19.1
Gender	Female	543	80.9
	Dormitory	58	8.6
Accommodation of status	Rent	402	59.9
	Living with family	211	31.4
G 1.	Smoking	13	1.9
Smoking	No smoking	658	98.1
	No exercise	264	39.3
	1-2 times/week	246	36.7
Time for exercise	Over 2 times/week	161	24
	Total	671	100
Data malusia			

Table 2. Respondents demographic characteristics

Data analysis

The SPSS version 22 was used. Descriptive statistics were performed for respondents "Gender, accommodation status, time for excercise and smoking or not), respondents status and assessment of academic performance". Factor analysis was performed to sift the direct stressors from the 17 items provided. Kaiser–Meyer–Oklin (KMO) (0.764) and Bartlett's Test of Sphericity (p = 0.001) proved the suitability and adequacy of the data for factor analysis (Hair et al. 1998). Differences in frequencies among participants" level of study were assessed using Chi-square (χ 2) tests. Due to the ordinal nature of participants "academic rating (from 1 = very good to 4 = poor due to non-response for excellent), a series of ordinal logistic regression model was conducted to assess respondents" reactions when stressed and the effect of the direct stressors on respondents" academic performance using odds ratio (OR) with 95% lower and upper bounds (CI). In Proposal Model, crude odds ratio (OR) was calculated for respondents academic performance (dependent variable) and feeling when stressed (independent variable). We undertook Pearson's goodness of-fit measure for the ordinal logistic regression models. The level of significance was set at <math>p < 0.05.

Results

Exploratory Factor Analysis – EFA's Result:

The result shows that KMO = 0.764>0.5, Batlett has p-value of 0.000<0.05, Variance explained criteria is 63.108%, bigger than 50%, factor loading is bigger 0.5. After using EFA's analysing, the result shows that 17 items are reformed into six factors (Table 3).



Table 3. Rotated Component Matrix						
			Com	ponent		
	Studying	Health	Facility	Finance	Activity	Distance
Examnation (revise, test)	0.77					
School work	0.7					
Not much of time	0.647					
Supervisor-teacher (unfair, demanding, not ready)	0.546					
Poor sleep quality or sleep problems		0.782				
Physical and incomplete physical condition		0.78				
Food (meals are not actractive or unhealthy)		0.63				
Not satisfied with classroom			0.92			
Not satisfied with facilities			0.919			
Invoice to pay/Over spend				0.835		
Lack of money				0.761		
Schoolmate behavior (Rule, thou	ghtless, sexi	st/racist)				
Extracurricular activities off school, friends					0.842	
Participating in social activities, including dating ,partying					0.796	
Family: obligations or family act	ivities					
Get up early (for class or work)						0.689
Distance from place of						0.542
accommodation to class						0.542
KMO			0.	764		
P-value of Barlett test			0.	000		
Total Variance Explained			63	.108	7 / /	

. . . .

Factor 1 – Studying: Examination (revise, tests); School work (course duration, long-term assignments, practical exercises, boring / hard reading materials); Not much time off; Supervisor - Lecturer (unfair, demanding, not ready).

Factor 2 – Health: Poor sleep quality or sleep problems; Physical: incomplete physical condition; Food (meals are not attractive or unhealthy).

Factor 3 – Facility: Not satisfied with classrooms; Not satisfied with facilities.

Factor 4 – Finance: Invoices to pay/Over spend; Lack of money.

Factor 5 – **Activity:** Extracurricular activities of school, friends ...; Participating in social activities including dating, partying.

Factor 6 – Distance: Distance from place of accommodation to class; Get up early (for class or work). Two items: Schoolmate behavior (Rude, thoughtless, sexist/racist); Family: obligations or family activities don't belong to any factors.

These six factors also are independent variable in the proposal model, which affect deeply to the Assessment of academic performance factor (Denpendent varibale).

Regression

In the proposal model, only Finance factor have negative affected to academic performance of student with P-value under 0.05. Other factors not affecting student achievement (p-value is greater than 0.05).



Table 4. The result of Regression						
	Unstandardized Coefficients		Standardized Coefficients	t	p-	
	В	Std. Error	Beta		value -	VIF
(Constant)	3.612	0.188		19.209	0.000	
Studying	0.021	0.046	0.02	0.455	0.650	1.303
Heath	-0.026	0.04	-0.029	-0.653	0.514	1.305
Facility	-0.009	0.031	-0.012	-0.304	0.761	1.11
Finance	-0.074	0.035	-0.09	-2.106	0.036	1.226
Activity	-0.032	0.037	-0.035	-0.867	0.386	1.069
Distance	-0.027	0.036	-0.033	-0.755	0.451	1.257
a. Dependent Variable:	Assessment of a	academic j	performance			

Discussion

This result shows that the more financial pressure, the lower academic performance of students. Lack of money for living cost or pressure from monthly invoices makes students face the pressure of spending, eating as well as current life needs. This pressure causes students to be distracted from learning ideas or lead to extra work to solve the problem of lack of money. Part-time jobs also negatively affects academic performance.

The Distance factor does not affect academic performance. This might be explained by the fact that students in FTU have the tendency to choose convenient rental locations for university. This also explains to the result that pressure on school time does not affect students' academic performance.

Activity factor also does not affect the academic performance of students. All activities are usually voluntary for students so participation has been arranged by students before. Meanwhile, activities are operated under the school's supervision. Therefore, the distribution of time as well as the timing of events is being arranged reasonably.

Facility factor do not affect students' academic performance. This result shows that classrooms as well as equipment in FTU are supporting the student's need of learning. School facilities have also improved in recent years. Financial autonomy of universities leads to an increase in tuition fees. Therefore, students seem to have higher academic requirements when more tuition fees are spent.

Academic problems factor do not affect student academic achievements as long as they have enough sleep and eat healthy enough. The results show that the students' testing pressure is no longer significant if they have support from lecturers as well as open documents and materials from the Internet.

Last but not least, Health factors do not affect academic performance. The fact that students get enough sleep, use good food for health or health condition are factors that students can be active. The results might be due to the fact that research samples are mainly economic students with higher research samples of women than men. Therefore, health care factor is ensured.

In conclusion, considering the extensive curriculum and the intense stress from society, FTU students need a decent orientation and reasonable education on the effects of stress on academic performance. The orientation and education should include coping mechanisms which can help reduce the probability of severe emotional distress. This study further calls for actions to help students in FTU and in Vietnam in general acknowledge the possible cause of stress and mechanisms on how to cope with them in order to improve academic performance.



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The Effectiveness of Immersion Programs in Developing Students' Language and Cultural Competence

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ABSTRACT

There are multitudes of benefits from joining student immersion programs, which are not only academic but also cognitive, creative, and social in nature. Particularly, they help students enhance their language and intercultural competence. In the Philippines, one HEI which offers consular and diplomacy program provides opportunities to students to participate in immersion activities to hone their proficiency in another foreign language and expose them to the culture of other countries. After four years since its implementation, a study was conducted to determine the participants' satisfaction with the program resources/support and activities conducted to ensure effective program implementation. It also determined the participants' perception of their learning outcomes and the benefits they have gained from the program. A total of 88 program participants responded to the online survey. Results indicate that the participants were very satisfied with the different program components, namely, faculty advisers, funding support, overall costs, and host institution. They were also very satisfied with the different activities before and during the immersion and found them relevant to the achievement of program objectives. They also indicated that their language proficiencies and cultural competence have improved, and that they have gained greater motivation to study. They also cited the program's effectiveness in enabling students to achieve the intended learning outcomes, namely, practice of functional linguistic skills, engagement in greater and more sustained varieties of intercultural communication, preparedness in taking relevant language proficiency accreditation test, better appreciation of cultural diversity, and sensitivity and respect for cultures and ideas beside their own. It was recommended that the program be continued, with some areas for improvement.

Keywords: Immersion Program, Language and Cultural Competence, Student Outcomes







Background of the Study

There are multitudes of benefits from joining student immersion programs, which are not only academic but also cognitive, creative, and social in nature. In particular, cultural and language programs have positive impact on developing second-language learning and proficiency (Du-Babcock, 2017; Savage, 2010; Genesee, 2007; Anorga, 2016), intercultural sensitivity and awareness (Nam, 2011), and learning skills to help students succeed in their lives (Hudsonway Immersion School, 2017). They also help students achieved higher levels of confidence and self-efficacy (Cubillos, Chieffo and Fan, 2008; Anorga, 2016), and stronger interest in the language they were studying (Liddicoat, Scrimgeour and Curnow, 2011).

Recognizing the educational benefits of these immersion programs, one higher educational institution (HEI) in the Philippines offering a course in diplomacy started organizing cultural and language immersion program for its students in AY 2014-2015. The program provides opportunities to students to participate in these immersion activities to hone their oral and written proficiency in another foreign language aside from English and to expose them to the culture of other countries. It offers language and culture immersion programs in Spanish, French and Chinese, in coordination with the Universidad de Alcala de Henares in Madrid, Spain, Alliance Francaise in Strasbourg, France, and Confucious Institute in Mainland China, respectively.

The Spanish and French Language and Culture Immersion Programs are three-week programs, while the Chinese Immersion Program is offered for the duration of two weeks. All programs offer intensive language lessons every weekday. The weekends and some afternoons during weekdays, on the other hand, are spent for cultural activities and study tours. Participation in these programs is credited to the on-the-job (OJT) or Language Elective course.

The participants are expected to attain the following learning goals or outcomes at the end of the program:

practice their functional Spanish/French/Chinese linguistic skills in speaking, reading, and writing within the contexts simulating their future professional workplace;

be engaged in greater and more sustained varieties of intercultural communication on themes relevant to the program's disciplinary pillars;

be better prepared for taking the relevant language proficiency accreditation test (particularly A1, and possibly A2);

gain a better appreciation of cultural diversity; and

develop sensitivity and respect for cultures and ideas beside their own.

As of AY 2017-2018, a total of 166 students have participated in the programs. After 4 years of implementation of the immersion program, it was deemed necessary to conduct a study to determine the participants' satisfaction with the different components of the program.

Objectives of the Study

This study aimed to determine the satisfaction of the participants of the language and culture immersion program with the different program components, particularly in terms of:

resources/support made available for program implementation

activities or actual services offered to the participants

participants' learning outcomes, as shown by:

- extent of improvement of their language proficiencies and cultural competence,



-medium-term outcomes,

- extent to which expected student outcomes were achieved, and
- -benefits obtained from the immersion program.

Figure 1 presents the different components of the program included in the study:



Figure 1: Program Components Included in the Study

Method

This descriptive study aimed to determine the satisfaction of the participants with the immersion program. It included 88 out of the 166 total number of participants of the three language and culture immersion programs from SY 2014-2015 to SY 2017-2018 [Table 1]. A proponent-developed survey form was used which was sent online to the participants using google form. Data were analyzed quantitatively using means and standard deviations.

Table 1: Profile of Respondents							
Year/Type	N	f	%				
			(f/88)				
Year of Participation							
2014-2015	40	28	31.8				
2015-2016	50	34	38.6				
2016-2017	53	19	21.6				
2017-2018	23	7	8.00				
Total	166	88	100				
Type of Immersion							
France	88	41	46.6				
Spanish	49	33	37.5				
Chinese	29	14	15.9				
Total	166	88	100				



Results

Participants' Satisfaction with the Different Program Resources/Support

Results in Table 2 indicate that the participants were very satisfied with the different resources available to support the program implementation, particularly the support and guadianship of faculty advisers, cutural visits, and host institutions' quality of instruction, support and assistance to students, teaching effectiveness of facilitators and lectures, lessons and modules, and facilities/equipement/internet access. They were satisfied with cost and expenses in airfare and hotel accomodations.

Table 2: Satisfaction with the Different Program Resources					
Program Components	Mean	Interpretation			
Faculty advisers (support and guardianship)	4.78	VS			
Funding support from the college	4.57	VS			
Costs/expenses for the following:					
- airfare	4.05	S			
- hotel accommodations	4.23	S			
- cultural visits and tours	4.63	VS			
Host institutions					
- quality of instruction	4.63	VS			
- support and assistance to students	4.64	VS			
- teaching effectiveness of facilitators and lecturers	4.64	VS			
- lessons, modules	4.57	VS			
- facilities/ equipment/internet access	4.61	VS			
4.45 - 5.00 = Very Satisfactory					
3.45-4.44 = Satisfactory					

When asked about their comments about the different program resources, the participants generally gave positive feedback. For example, 13 participants indicated that the airfare cost/expense was reasonable/good. Three said they were given travel subsidy/scholarship. However, four participants each believed that the airfare cost was quite expensive and that they would have paid less if the ticket was bought earlier or from a travel agency of their choice. In terms of living arrangements/hotels, 30 participants found living with a foster family satisfying as family members were very accommodating, caring and hospitable. Those who stayed in the hotels rated the hotel accommodations as good/nice, clean, and spacious. However, a few others indicated that their hotels were far from the school, had weak wifi connection, and scary. Nine of the respondents indicated that they were billited in a dormitory which was a good/fun experience and very accessible to the school.

The participants had also nice things to say about the cultural tours and visits. Almost half of them found the tours as very educational and a learning experience as they learned a lot about the history, culture and beautiful landmarks of the host countries. A number of them rated them as fun/enjoyable and great/interesting/good/the best. However, a number of them wished that more time should have been allotted and more places should have been visited in the duration of their immersion. Examples of the participants' comments include:

"It was fun and a great learning experience."

"The tours were great, although, there were only a few in the given time frame we had." "The visits and tours were very educational."

"It would have been better if we have more cultural visits and more time to experience the place." "It was an amazing experience, since we visited a lot of landmarks and also had the chance to learn a lot about their culture and also immerse ourselves in their culture."



The participants were also very satisfied with the host institutions. They indicated that quality of instruction provided to them were good/okay, clear/understandable/explained well, organized and well-prepared, and informative. They also considered the teachers or lecturers as accommodating/approachable/supportive, and competent and knowledgeable. These can be gleaned from their comments, such as:

"The host institution provided clear and concise instructions. Also, we didnt have a hard time because the faculty adviser helped us a lot."

"...the quality of education there was superb and the teachers knew how to handle foreign students. All of the teachers were very kind, even the staff at the canteen. Furthermore, the teachers were patient..."

"The instructions given were detailed and highly organized. If there were any question regarding the given instructions, contact persons were easily available."

As for the support and assistance, the participants stressed that the host institutions were very helpful/supportive to students, accommodating/considerate/warm, very good/satisfactory, and responsive to their needs and expectations. They also rated the teaching effectiveness of facilitators and lecturers as verv good/great. Thev also described their mentors as patient/accommodating/understanding, friendly/nice/approachable/helpful, having good teaching skills and techniques, engaging/interactive, skillful/knowledgeable, and professional. The teachers also made sure that they learned from the language and immersion program which they said that they actually did.

Similarly, the participants considered the modules/lessons as good/ satisfactory/adequate, helpful/useful/relevant in understanding the lessons, and easy to understand. Eleven of them indicated that the lessons were the same/similar with those they had in school.

Lastly, the facilities and equipment of the host institutions were rated very well by the participants. They indicated that these were good/superb/great, modern/advanced, adequate/complete, neat/clean/organized, and conducive to learning.

Participants' Satisfaction with the Different Program Activities

The participants were also very statisfied with the different activities before and during the immersion program. In particular, they were very satisfied with the pre-departure support accorded to them by the school administrators in terms of preparation of their passports, visas, airfare and hotel accommodations, and with the pre-departure training and orientation. In so far as activities during the immersion program were concerned, they indicated satisfaction to a very great extent with extra-curricular activities, cultural activities and tours, language and communication classes, written and verbal skills activities, and guided tours. On the other hand, they were satisfied with the opportunities provided for interaction with the locals and native language speakers. [Table 3]

Table 3: Satisfacton w	ith the Activitie	s Before and During	the Immersion Program

Activities	Mean	Interpretation		
Pre-departure support in terms of passport, visa, airfare and	4.56	VS		
hotel accommodation requirements and preparation				
Pre-departure training and orientation	4.57	VS		
Extra-curricular activities	4.60	VS		
Cultural immersion				
- cultural activities and tours	4.67	VS		
- opportunities for interaction with the locals	4.40	S		



Language and Cultural Immersion Activities			
- language and Communication Class in the am	4.58	VS	
- written and verbal skills in the pm	4.48	VS	
- guided tours	4.47	VS	

When asked for their comments about the different activities before and during the immersion program, the participants generally gave positive feedback. For the pre-departure support, they indicated that it it was great/good/excellent/very satisfactory, well-planned/organized, and went very smoothly/well. They attributed this to their school and travel agency who helped and took care of everything and to the orientation sessions conducted to brief them about the immersion program.

In so far as pre-departure training and orientation, the participants indicated that it was informative/detailed, good/very satisfactory, and clear/specific/easy to understand.

The participants also indicated that the extra-curricular activities offered by the host institutions were great, fun, educational, and well-planned/organized. For example, they commented that:

"Activities were fun and well thought of. They organized a range of activities for different interests."

"I enjoyed the cooking class and weekend in Paris."

"We played Amazing Race! It was an unforgettable experience!"

"The activities engaged us mentally and physically. The variety of activities were well planned."

"We had a set of very intreresting extra-curricular activities which also involved the culture and history of China."

Again, the participants described the cultural activities and tours as great/very satisfactory/good, educational/informative, and fun/enjoyable. They were also a great way to see, live and be immersed in the life and culture of the place. Five participants, however, hoped that more time were allotted and more places were visited.

The participants had a lot of opportunities to interact with locals when they were out of campus (e.g., went to bars, went shopping, with the foster family). They were also encouraged by their teachers to speak to locals and to apply what they have learned. They found their interaction with the locals as good/very satisfactory, but at the same time, very minimal/limited and challenging.

Participants' Learning Outcomes

One of the main objectives of the immersion program is for the students to enhance their functional linguistic skills in speaking, reading, and writing. The participants indicated having improved to a great extent their speaking, writing, reading, grammar and vocabulary skills. On the other hand, they have enhanced their listening skills in the language to a very great extent.

According to the participants, their language skills were developed to a great extent due to their actual experience with and exposure to the people and places which forced them to converse in the language. They also cited the exercises/activities conducted in the class (e.g., audio exercises, listening to music, watching videos, recitations, group work, role playing, and writing worksheets).

Another goal of the immersion program is to develop the cultural competencies of the participants. This goal has been achieved as participants indicated that they have developed to a very great extent their cultural knowledge, attitude, and skills after going through the immersion program. In particular, they became aware and open of the host country's history, culture, people, language, traditions, values and traditions, and of differing views, opinions and cultural perspectives. They also have developed



their ability to effectively manage cultural differences/diversity and personal biases and stereotypes, and to communicate and interact with people from other cultures. They cited the following that helped them enhance their cultural competencies: (1) the opportunities to visit significant places like museums, churches, tourist spots, (2) the information shared by tour guides and lecturers, (3) living with our foster family, (4) actual experiencing the local life, and (5) the opportunities to mingle and interact with the locals.

In so far as the medium-term outcomes are concerned, the participants indicated that immersion program has helped them gain greater motivation and more interest in studying the language and culture. Among the comments given by participants with regards to this include:

"We were challenged to study our lessons even more because (we were) required to converse in the language ... "

"I was motivated more to study and accomplish things. Because if I survived that during the immersion. I can do more."

"Seeing the improvement in performance motivated me to study more."

"The immersion program helped me to crave for more knowledge and to further learn the French language as a whole."

"It motivated student like me to pursue higher level of education as we were also immersed to visit their schools, showing us their excellent facilities and programs.'

On the other hand, other participants indicated that the immersion program has improved their confidence and has given them inspiration and motivation to advance their knowledge.

Lastly, the participants indicated that they have achieved the expected student outcomes to a great to a very great extent. Those met to a very great extent include gaining better appreciation of cultural diversity and developing sensitivity and respect for cultures and ideas beside their own. On the other hand, they were able to practise functional linguistic skills, become engaged in greater and more sustained varieties of intercultural communication, and prepare themselves better for taking the relevant language proficiency accreditation test.

Table 4 presents the outcomes of the language and cultural immersion program.

Table 4: Student Outcomes of the Immersion Program				
1. Language Proficiencies	Mean	Interpretation		
Listening	4.47	Very Great Extent		
Speaking	4.39	Great Extent		
Writing	4.25	Great Extent		
Reading	4.43	Great Extent		
Grammar	4.25	Great Extent		
Vocabulary	4.38	Great Extent		
2. Cultural Competence				
Cultural knowledge (i.e., awareness of their history, cultures,	4.52	Very Great Extent		
language, traditions, values, and practices)				
Cultural attitude (i.e., being open to differing views and opinions &	4.65	Very Great Extent		
cultural perspectives, understanding/respect people from other				
cultures, etc.)				
Cultural skills (i.e., ability to manage cultural differences/ diversity,	4.61	Very Great Extent		
personal biases/stereotypes, & interact with other people)				



3. Medium Term Outcomes		
Greater motivation to study lessons	4.56	Very Great Extent
More interest in studying the language and culture	4.83	Very Great Extent
4. Student Outcomes		
To be able to practice functional linguistic skills in speaking,	4.15	Great
reading, and writing within the contexts simulating their future		Extent
professional workplace		
To be engaged in greater/more sustained intercultural	4.41	Great Extent
communication on themes relevant to the department's disciplinary		
pillars		
To be able to prepare themselves better for taking the relevant	4.38	Great Extent
language proficiency accreditation test		
To gain a better appreciation of cultural diversity	4.81	Very Great Extent
To develop sensitivity/respect for cultures and ideas beside their	4.78	Very Great Extent
own		

Greatest Benefits from the Immersion Program

When asked about the greatest benefits that they have received from the immersion, the participants cited the opportunity to learn and appreciate the language and culture of their host country, to gain new experience, to study abroad, and to become independent. Some comments given include:

"The greatest benefits that I consider were being able to study their language and culture, having the opportunity to meet the locals, and of course being able to study in France."

"It gave students the opportunity to explore and be open to different cultures. It also helped us understand where they are coming from in terms of their political standpoint, norms, values, and practices based on the history as well as their root."

"The immersion program, as a whole, provided me the greatest opportunity to intimately and personally know more about the French culture.. (It) has given me the magnanimous opportunity to go to France and appreciate the country."

"The greatest benefit would be experience. Experience is the best teacher."

"Learning things that could not be learned inside the classroom like going around in a foreign country, learning to actually speak their language with the locals, meeting new people and adjust to any kind of situation. It was somehow like a preparatory life after college."

Conclusion and Recommendations

Results of the study indicated that the participants were very satisfied with the different components of the immersion programs. In particular, they were satisfied with the resources that were made available as well as with the activities that were conducted before and during the program to ensure the effective implementation and success of the language and culture program.

Similarly, results of the study have shown the benefits of the language and culture immersion program to the participants. The immersion program facilitated the enhancement of students' language proficiency and cultural competence. It also helped the students develop their academic motivation, self-confidence, self-efficacy, and independence. It also provided them motivation and inspiration to learn more about the culture, the people and the language of another country.

There are various factors that facilitated the success of the immersion program. First is the support provided by the school. The school provided the participants faculty advisers who oriented them about the program, helped them with their travel documents and requirements, and served as mentor, adviser,



and guardian while in another country. The school also provided scholarships to qualified students to cover for all their expenses. Second is the quality and support of the host institution. Results have shown that the host institutions were very satisfactory in terms of instruction, support and assistance to students, lecturers, lessons/modules, and facilities and equipment. This can be attributed to the fact that the school was very careful in choosing partner insitutions that will conduct the immersion program of the students. It made sure that the host institutions were accredited and recognized by their respective embassies in the country. Third is the openess, enthusiasm, and seriousness of the participants to learn about the language and culture. The students were reported to be attentive, engaged, and involved in their classes and homeworks.

It is recommended that the language and culture immersion program be continued, taken into consideration the participants' suggestions for improvement. This include alloting more time for preparation of travel documents and requirements, extended financial benefits/aids by the school to students who cannot afford but are deserving, and extensive advertisement/information dissimination to attract more students to join the program. As for the immersion program itself, more time should be alloted in order for the students to appreciate and learn more about the place, culture and the language of the host country, more structured after-class activities should be offered by the institution to give the participants opportunities to mingle and interact with locals and students from other universities, and more cultural and historical sites and places and universities, and national parks should be explored.

Furthermore, since this study only involved the perception of the student participants, it is recommended that a follow up study be conducted involving other program stakeholders, such program administrators of the college and host institutions, faculty advisers, language teachers, and foster parents. This is to gather more extensive data about the effectiveness of the language and culture program.

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The Implementation of Outcome-Based Education Practices in Central Philippines State University

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ABSTRACT

The shift towards Outcome-Based Education (OBE) among the higher educational institutions is persistent due to the demand to equip graduates with competencies at par with international standards which will lead to a favorable outcome in their professional practice and their ability to demonstrate greater global mobility. Many studies were conducted about the Outcome-Based Education (OBE), but few literatures were available how far the OBE practices would bridge the gap between the use of traditional teaching practices and learning experiences of students. The aim of this study is to determine the level of implementation of Outcome-Based Education practices in Central Philippines State University in the Philippines. A descriptive comparative study was employed and yield the following results; the level of implementation of Outcome-Based Education was moderately practiced in Central Philippines State University. This means that the teaching practices and learning experiences could hardly develop their skills to attain the intended teaching and learning outcomes. Inferentially, a significant difference was indicated in the assessment of students when grouped according to year level considering their curricular training. Furthermore, a significant difference was also noted between the assessment of instructors and students due to their varied exposure and experiences. The research findings are entitled for designing a proposed Outcome-Based Education (OBE) institutional framework aligned with Vision, Goals, Mission and Objectives of the University.

Keywords: Outcome-Based Education, Learning Outcomes, Central Philippines State University





Introduction

Outcome-Based Education (OBE) has been accepted and favored internationally as a model to restructure education in many countries (Malan, 2000). The globalization brings change from a teachercentered paradigm to a learner-centered one within a lifelong learning framework that conforms with the existing international standards (UNESCO, 2015). The implementation of Outcome-Based Education focuses on a framework and organizes the curriculum around predetermined and clearly defined student outcome-based learning on competencies comprised of the required knowledge, skills, and attitude based on real-life situations (Biggs, 2014; Tam, 2014). The curriculum is designed to ensure the alignment of contents, delivery, activities, and assessment to facilitate students' attainment of specific intended learning outcomes (Pang, Ho, & Man, 2009). It underscores a learning-based method focused on what students know and can do as a result of their learning experiences. It is a process that involves the restructuring of the curriculum, learning activities, and assessment and reporting practices in education that reflect the achievement of higher order learning and mastery of tasks rather than the accumulation of course credits or units (Rahman. et al., 2016).

Specifically, the Commission on Higher Education (CHED) in the Philippines has mandated all higher educational institutions to adopt an outcome-based education approach to teaching and learning through CHED Memorandum Order (CMO) No. 46, Series of 2012, on the Policy and Standard of Enhanced Quality Assurance (QA), known as Philippine Higher Education Outcome-Based and Typology-Based Quality Assurance. The shift towards OBE among the higher educational institutions is persistent due to the demand to equip graduates with competencies at par with international standards, which is indicative of the favorable outcome in their professional practice and their ability to demonstrate greater global mobility. Moreover, OBE is an educational exercise to carry out adherence to the Philippine Qualifications Framework (PQF) (Villanueva et al., 2017).

The Central Philippines State University (CPSU) main campus adopts the OBE framework since school year 2013 for all its programs and it is measured through the output and performance of students. Hence, the researcher was prompted to investigate how far the implementation of OBE approach would bridge the gap between the use of accustomed curriculum/methodology and the learning experiences of students with different needs and different orientations. The research findings are entitled for designing a proposed CPSU-Operational Plan using Approach, Deployment, Learning, Integration (ADLI) model that can be adopted and implemented by the University.

Objectives of the study

This study seeks the level of implementation of the Outcome-Based Education (OBE) among the seven colleges of Central Philippines State University-main campus based on the OBE standards for Academic Year 2017-2018. Specifically, the study aims to find out the level of implementation of the OBE standards among the colleges as assessed by the instructors as a whole and when they are grouped according to academic classification: a) Professional; b) General Education, and as assessed by the students, as a whole and when grouped according to year level. This study further aims to determine the significant difference on the OBE implementation as assessed by the students when they are grouped according to year level and significant difference as assessed by the students and instructors.

Theoretical framework

This study is anchored on the Constructivism Theory by Jean Piaget that improve students' logical and conceptual growth and has a wide influence on teaching and learning process in the educational system. Instructors encourage students and help them acquire knowledge from the experiences. Instructors must emphasize the vital role that produces knowledge and makes meaning through experiences or connections in the education of students (Carpendale, 2013).Students develop their abilities and express knowledge to real life. Additionally, this study is supported by the Behaviorism Theory that focuses on objectively observable behaviors and discounts any independent activities of the mind. Behavior



theorists define learning as nothing more than the acquisition of new practice based on environmental conditions (Baum, 2017). In this context, OBE is linked with this theory because it focuses on the achievement of outcomes by learners who must demonstrate performance through their behavior and actions. Students should be able to apply the knowledge and skills they have gained in the classroom in their daily activities and even outside the classroom situation.

Plan, do, check, and act cycle.

The schematic diagram of this study is illustrated in Figure 1 using the Plan, Do, Check, Act (PDCA) cycle for continuous improvement. The PDCA is a systematic series of actions wherein the organization is in the constant state of the driving process of improvement. This involves a focus on linear and incremental improvement within existing processes. Introduced by Dr. Edward Deming, this is also known as the Deming wheel or Deming cycle (Deming, 2000).



The cycle begins with the Plan. This involves identifying the issues on the implementation of Outcome-Based Education standards which aims the employability and life-long learning skills of the students. The Do refers to the components of the plan that are put into action. In this case, it is the implementation of the OBE standards which include the mission, graduate attributes, curricular development, instructional delivery, assessment, student advancement, culture, vision, and improvement (Spady,1994). The Check is the assessment and monitoring stage of the outcomes to determine the progress and success or areas for improvement. The assessment of the implementation entails the gathering of data from various sources such as survey questionnaire, document verification of assessment tools, syllabus, checklist and rubrics, and key informant interview. Lastly, the Act is the action or the integration of learning generated by the entire process. Results of this study were the basis in designing a CPSU-OBE institutional framework using Approach, Deployment, Learning, and Integration (ADLI) Model indicating the functional strategies to continually implement OBE approach and to comply with CMO 46, s.2012, known as Philippine Higher Education Outcome-Based and Typology-Based quality assurance.

Literature Review

Objectives of outcome-based education

The Outcome-Based Education focuses and organizes everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. The outcome-based system develops a clear set of learning outcomes around which all of the system's components can be focused. It also establishes the conditions and opportunities within this system that enable and encourage all students to achieve those essential outcomes (Spady, 1994). New and emerging technologies challenge the traditional process of teaching and learning and the way things are managed and controlled (Macatangay, 2013). This means that students demand high profile implementers that will enhance their prospects. Hence, the challenge lies in how the higher institution provides the relevant approach to teaching that will address those aspects that bear upon teaching and learning (Guico & Dolor, 2013).

Outcome-based education implementation

The implementation of learning outcomes is a massive undertaking to transform all curricula to be expressed regarding outcomes The existing curricula need to be reviewed in line with the outcomes approach, and this often takes a long time to accomplish. It will be necessary for the review process to confirm that the curriculum does provide opportunities for the development of the desired learning outcomes and that sufficient provision is made for the outcomes to be demonstrated and assessed (Woldetensae,2007).

Standards of outcome-based education

OBE is viewed by some as a valuable replacement of the traditional model of relative ranking by ability and getting credit for merely sitting through class. Proponents favor OBE because of its vision of high standards for all groups and because it measures outputs rather than inputs. OBE would require students to demonstrate learning rather than to just show up. Assessment is also the heart of the whole teaching and learning process in OBE. According to Orsmond and Gildenhuys (2005), assessment is not based on content as it was in the past. Assessment is broad enough to include attitudes, processes, and skills as well as knowledge and concepts. Teaching is outcome-based, and learners play a major role in the teaching and learning process. Assessment is linked to the outcomes that the learner achieves.

Outcome-based education around the world

OBE is being recognized as the most important educational component of societies with a knowledgebased economy. In Canada, Hejazi (2011) discovered that the Canadian institution has started to show a significant shift toward this new paradigm to be globally competitive. In India, Kar and Das (2017) emphasized the need for changing the design approach to the training of teachers of technical institutions for the effective implementation of Outcome Based Education (OBE). In the Philippines, the CHED Memorandum Order (CMO) No. 77, s.2012 mandated engineering schools to follow a new set of policies, standards and guidelines for all baccalaureate engineering programs that defined the needed competencies for the practice of each engineering field, and a set of program outcomes that engineering students in the different fields are expected to possess by the time they graduate. Laguador and Dotong (2014), that the high knowledge of Engineering faculty members will result to the high extent of Outcome-Based Education practices. Llanes (2014) concluded that the implementation of OBE/OBTL should focus on the alignment, and mapping of the curriculum, assessment of output aspect, and improvement of the quality of instruction .

Methodology

The study applied the descriptive-comparative research design to obtain the objectives presented. There were 17 general education instructors, 55 professional instructors and 857 students representing the total population of 1,137 from the first year to fourth year level of seven colleges and fifth year level of the CPSU College of Engineering. Moreover, the research used an adapted survey instrument based on Network for Outcome-Based Schools (NOBS) developed by Dr. William Spady. It is composed of nine



areas namely: mission, graduate attributes, curriculum development, instructional delivery, assessment, student advancement, culture, vision, and improvement (Spady, 1994). The three-point Likert type was used to indicate their assessment on the level of implementation on OBE practices. To establish the validity and reliability of the instrument, the researcher subjected the questionnaire to content validation using the criteria suggested by Good & Scates (1972) and to a pilot-test for culture-bias free reliability which resulted to .94, thus, the instrument is reliable. For the statistical tool, the mean was employed to determine the level of implementation of Outcome-Based Education practices among the seven colleges in the Central Philippines State University-main campus in the Philippines as assessed by the instructors and students when they are taken as a whole and when they are grouped according to academic classifications, and year level respectively. ANOVA was used to determine the significant difference in the level of implementation of the OBE standards as assessed by students when they are grouped according to year level. Furthermore, Sample t-test was used to determine the significant difference in the level of implementation of the OBE standards as assessed by instructors and students.

Results and Discussion

grouped according to academic classification						
OBE Standards	Prof Ed (n=55)	Gen Ed (n=17)	Mean (n=72)	Interpretation		
Mission Statement	2.65	2.53	2.62	Moderate		
Graduate Attributes	2.47	2.45	2.47	Moderate		
Curriculum	2.58	2.52	2.57	Moderate		
Instruction	2.53	2.56	2.54	Moderate		
Assessment	2.60	2.55	2.59	Moderate		
Students	2.41	2.39	2.41	Moderate		
Culture	2.25	2.42	2.29	Moderate		
Vision	2.44	2.60	2.48	Moderate		
Improvement	2.24	2.42	2.28	Moderate		
As a Whole	2.46	2.50	2.47	Moderate		
		267 W W W V9	11 11			

Table 1: The level of implementation of OBE practices as assessed by the instructors when

The data in table 1 shows the level of implementation of OBE as assessed by the general education and the professional education instructors. Among the nine (9) standards of the Outcome-Based Education approach, the professional education instructors observed outcomes related to mission statement (m=2.65) higher than the rest of the standards while the general education instructors observed outcomes related to vision (m=2.60) as their highest which both are interpreted as moderate. The professional instructors observed improvement outcomes as the least while the general education instructors observed students as their least although both are interpreted as moderate. This means that outcomes related to vision and mission statement are evidently practiced across seven colleges of CPSU-main campus. This implies that CPSU-main campus as assessed by the instructors had almost achieved the vision and mission to be the center of excellence attuned to global diversity that provides quality research, instruction, production and extension programs responsive to the local and global challenges and demands. As a whole, the level of implementation of OBE as assessed by the instructors is moderate, with a mean of 2.47. This means that the teaching practices of the instructors is at the average level. They need support from the administration for the full implementation of OBE practices. This agrees with the result in the study of Mekonen (2012), that the success of OBE implementation



depends on the support of the administration particularly in giving the needed resources to be nourished such as trainings and seminars. According to Guico & Dolor (2013), the challenge on the implementation of OBE lies on how the higher institution provides the relevant approach and support to teaching that will address those aspects that bear upon teaching and learning.

Year level	n	Mean	Interpretation
Fifth Year	19	2.05	Moderate
Fourth Year	267	2.32	Moderate
Third Year	353	2.44	Moderate
Second Year	79	2.49	Moderate
First Year	139	2.38	Moderate
As a Whole	857	2.38	Moderate

 Table 2: Level of implementation of the outcome-based education practices as assessed by the students as a whole and when grouped according to year level

The data in Table 2 shows a moderate implementation of OBE practices as assessed by the students when they are grouped according to year level 1 with a mean of 2.38. This implies that the learning experiences of students could hardly develop their skills to attain the intended learning outcomes. It also connotes that the first year to fourth year students had experience a higher level OBE practices than that of the fifth year students of the Engineering. They need to be trained with the new technology. This agrees with the findings of Macatangay (2013), that the existing curricula must be reviewed in line with the outcomes approach. According to Woldetensae (2007), It will be necessary for the review process to confirm that the curriculum does provide opportunities for the development of the desired learning outcomes and that sufficient provision is made for the outcomes to be demonstrated and assessed.

Table 3: The significant difference in	the level of implement	ntation of the outcome-based
education practices as assessed by t	he students when grou	ped according to year level

Year Level	Mean	F-value	p-value	Interpretation
Fifth Year	2.05	AID		
Fourth Year	2.32	AIR		Significant at 0.05 aluba
Third Year	2.44	12.819	0.000	Significant at 0.05 alpha
Second Year	2.49			
First Year	2.38			

Table 3 shows the ANOVA result on the significant difference among the level of implementation of OBE practices as assessed by the students and when they are grouped according to year level. This means that the differences in the means are true and not due to sampling selection. Furthermore, Scheffe post hoc test shows that there is a significant difference exists between first year and fifth year, second year and fourth year, second year and fifth year, third year and fourth year, and fifth year, as well as fourth year and fifth year. This implies that each year level had the attainment of specific intended learning that corresponds to curricular training. Each year level has its own skill that needs to be developed. The result of the study supported the idea of Pang & Man, (2009) that Outcome-Based Education is designed to ensure the alignment of contents, delivery, activities, and assessment to outcomes.

Classification	Mean	Т	p-value	Interpretation
Students	2.38	-2 109	-2 109 0.035 Significant @ 0.05 alph	Significant @ 0.05 alpha
Instructors	2.47	-2.10)	0.055	level

Table 4: The significant difference in the level of implementation of outcome-basededucation practicesas assessed by the instructors and students

With regard to the findings presented in Table 4, a significant difference is visible between the assessment of students and instructors in the level of implementation of Outcome-Based Education practices with a p-value of 0.035 which is lesser than 0.05 level of significance. Due to varied exposure and experiences of instructors and students they differ in the assessment of OBE implementation. Instructors being part of the implementers, believed that they implement at a higher level compared to the students' assessment because of their experience and exposure to the seminars and conferences. Instructors play an important role in the implementation of OBE. In the same way, Meskelu (2010) stressed that the implementation is largely dependent on proper physical and human resource which are the teachers and the learning environment.

Conclusion

The Outcome-Based Education is moderately practiced in Central Philippines State University. The teaching methodology of the instructors are at the average level of developing the abilities of students in expressing their knowledge to real life. Moreover, the learning experiences of students could hardly develop their skills to attain the intended learning outcomes and make meaning from their experiences. Therefore, there is need to have an Outcome-Based Education (OBE) institutional framework aligned with Vision, Goals, Mission and Objectives of the University towards a favorable outcome in the professional practice of the students and their ability to demonstrate greater global mobility.

Recommendations

It is recommended that Central Philippines State University should utilize the Outcome-Based Education (OBE) institutional framework for continuous and sustainable monitoring of the implementation of OBE practices. This should be backed up with considerable actions and support from those who are in authority to implement the desired learning outcomes. The full implementation of Outcome-Based Education practices calls for a strong personal and professional aspects and from the institution it serves where all virtues come to life that leads to greater competence.

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ICT Integration in Higher Education in Southeast Asian Countries: Focusing on Malaysia, Indonesia and Philippines

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ABSTRACT

ICT policies have been a major focus in educational reforms throughout the world for nearly four decades. In view of the great potential of ICT for quality, efficient and accessible education, Southeast Asian countries have committed substantial financial resources to integrate ICT in education for nearly two decades. The purposes of this study were to examine the historical background and the current situation of the national policies on ICT for higher education in Southeast Asian countries, especially focusing on Malaysia, Indonesia, and Philippines, to identify the pertinent issues and challenges, and to provide practical suggestions and insights for a more effective implementation of ICT into higher education. Using documentary analysis, we found that three governments have mainly focused on developing MOOCs and required some selected universities to launch and operate the programs. Some challenges including insufficient ICT infrastructure and lack of experience and culture in using ICT were discussed and relevant policy recommendations were suggested.

Keywords: ICT Policies, Higher Education, Southeast Asia Countries







Background and purpose

It is widely accepted that access to Information and Communication Technology (ICT) plays a pivotal role in widening access, eliminating exclusion and enhancing quality. As a result, ICT policies have been a major focus in educational reforms throughout the world for nearly four decades (UNESCO Institute for Statistics, 2014). At the international level, in 2000 the United Nations (UN) firstly introduced a policy on incorporating ICT for development under the Target 8 of Millennium Development Goals (MDGs), which states that "in cooperation with the private sector, make available benefits of new technologies, especially information and communications" (UN, 2000). In 2015 when the era of MDGs came to an end, the UN adopted 17 Sustainable Development Goals (SDGs) with a new education goal (SDG 4), which calls on member states to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2015). In order to deliver on the promise of SDG4, the Qingdao Declaration announced in 2015 highlighted the significance of leveraging ICT for education to "strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more efficient service provision" (UNESCO, 2015).

In view of the great potential of ICT for quality, efficient and accessible education, Southeast Asian countries have committed substantial financial resources to integrate ICT in education in the past two decades (SEMEO, 2010; Ko & Kim, 2018). ICT in those countries has radically changed and accordingly the use of ICT in education has dramatically expanded. Southeast Asian countries, however, are at very different stages of integrating ICT in education. The Southeast Asian Ministers of Education Organization (SEAMEO), in 2010, has categorized its member countries into three groups according to UNESCO's four-stage model of ICT Development in Education, namely emerging, applying, infusing and transforming stages. Group 1 countries, including Brunei Darussalam, Malaysia, and Singapore, have implemented ICT in education and began to utilize ICT to support innovative ways of teaching, learning and administration, and therefore are at the infusing stage and moving towards the transforming stage. Indonesia, Philippines, Thailand and Vietnam belong to Group 2 countries, which range from emerging to infusing stage due to the great disparity between urban and rural areas. Cambodia, Lao PDR, Myanmar and Timor-Leste have been classified into Group 3 countries because they have just started to integrate ICT into education and are mainly at the emerging stage (SEAMEO Secretariat, 2010). Regardless of the different developmental stages, most countries in Southeast Asia believe that ICT complements and facilitates teaching and learning beyond the classroom and better engages the digital generation. By using ICT, the universities can make learning content more easily available to learners, improve the quality and standard of teaching and learning, and deliver consistent and easily reproducible learning experiences to learners (Ko & Kim, 2018).

Among Southeast Asian countries, three countries, Malaysia, Indonesia and Philippines, have initiated national policies on ICT to increase equal access to quality higher education. Those countries have different geographical, demographic, cultural, and socioeconomic environments, but they face similar challenges in ensuring access to high quality education. Recently, these three countries have initiated their own national policies to integrate ICT in higher education. Indonesia has initiated Indonesia's Online Learning System (SPADA) to provide affordable and flexible learning and expand access to high quality HEIs. The Philippines has initiated Medium-term ICT Harmonization Initiative for Higher Education (MITHI4HE). Malaysia also has initiated Globalized Online Learning (GOL) program, which intends to provide efficient course delivery, especially focusing on MOOCs, to improve access to quality education. All programs have been established to widen access to higher education reflecting each country's educational needs.

Although it is widely recognized that ICT is of vital importance to achieve the goals of education equity, quality and efficiency, particularly in developing countries, not many scholarly works have paid attention to developing countries, especially those with a wide range of geographical regions, and ethnic and cultural diversity. In addition, national level policies or national initiatives are very important in developing countries such as Malaysia, Indonesia, and Philippines as we discussed. This study calls more attention to Southeast Asian countries, which make endless effort to increase access to and



improve the quality of higher education. Therefore, the purposes of this study were to examine the historical background and the current situation of the national policies on ICT for higher education in Southeast Asian countries, especially focusing on Malaysia, Indonesia, and Philippines, to identify the pertinent issues and challenges, and to provide practical suggestions and insights for a more effective implementation of ICT into higher education.

Conceptual framework

This study intends to examine the national ICT policies for higher education in Malaysia, Indonesia and Philippines. To understand various aspects of the ICT initiatives, we primarily focused on three aspects of ICT in education including historical background; current situation; and related issues and suggestions. First, the Southeast Asian region is very diverse in terms of geographic, demographic, economic, educational and cultural factors. Accordingly, the educational capacity and developmental stage of ICT are very different among Southeast Asian countries. Thus, it is necessary to provide an overview of the background and development of the ICT policies on education. Second, analyzing the current situation of ICT integration in higher education is the main part of this study. For this, it is important to present and describe the current facts and key features of ICT initiatives in education. Lastly, when the policies have been implemented in the real situation, in general, many problems and issues have occurred, and the problems and issues play a critical role in the success or failure of the policies. In response to the issues and challenges, it is of great significance to provide actionable recommendations for further integration of ICT in higher education. Thus, we addressed related issues and offered suggestions for the future development of ICT in education.

Research methods

We mainly used two research methods. First, we analyzed official documents including government reports and plans and government regulations, reports from the HEIs implementing ICT programs, conference proceedings and presentation papers delivered by the experts who are actually involved in the national initiatives. In these cases, we used both primary documents and secondary documents. Second, we consulted with experts from each country. Those experts as representatives of their countries presented their policy initiatives in the official meetings. After reviewing the paper presented by the experts, the first author of this paper discussed about the topic and later email communication was followed for the additional clarification.

Results of the study

Improvement of infrastructure and quality of ICT services:

The infrastructure and quality of ICT services are a prerequisite for better integrating ICT into higher education. Four indicators were selected to measure the improvement of ICT services between 2010 and 2016 in Malaysia, Indonesia and Philippines. Households with internet access at home refers to the percentage of households with internet access via a computer, mobile phone, tablet, digital TV and so forth at home. Individuals using the internet refers to "the percentage of individuals who have used internet in the last three months". Population covered by at least a 3G mobile network indicates "the percentage of inhabitants that are within range of at least a 3G mobile-cellular signal, irrespective of whether or not they are subscribers". The last indicator, online service index "measures the level of sophistication and usability of each country's national website, including the national portal, e-service portal, e-participation portal, and government ministries' websites", with "a value of 0 indicates the lowest presence and a value of 1 the highest" (World Bank, 2018).

The basic infrastructure of ICT has improved in Malaysia for the past several years (World Bank, 2018). For instance, the percentage of households with internet access at home has increased 21.3%, from 55.6% to 76.9% between 2010 and 2016 (Table 1). Individuals using the internet and population covered by



high speed internet both reached 95% in 2016. Online service index, which is of considerable importance to measure the capacity of government on general online services, also has increased from 0.63 to 0.72.

Category / Year		Malaysia	Indonesia	Philippines
	2010	55.6	4.6	9.5
Households with internet access	2016	76.9	47.2	39.1
at nome (76)	Change	21.3	42.6	29.6
Individuals using the internet (%)	2010	81.0	10.9	25.0
	2016	95.0	25.4	55.5
	Change	14.0	14.5	30.5
	2010	81.0		69.0
3G mobile network (%)	2016	95.0	90.0	93.0
	Change	14.0		24.0
	2010	0.63	0.24	0.39
Online service index	2016	0.72	0.36	0.67
	Change	0.09	0.12	0.28

Table 1: Improvement of infrastructure and quality of ICT services

... indicates that data are not available.

Source: Authors created the table based on the data in World Bank (2018)

In Indonesia and the Philippines, the percentages of households with internet access at home have dramatically increased from 4.6% to 47.2% and 9.5% to 39.1% respectively between 2010 and 2016. The number of individuals using the internet also has greatly increased, but still below (Indonesia) or around (Philippines) 50%. Population covered by at least a 3G mobile network is much better because all selected countries are over 90%. Nevertheless, the online service index is very low in Indonesia.

ICT policy initiatives in higher education:

Studies have confirmed that most countries in Southeast Asia have encountered significant difficulties, including a growing gap between urban and rural population, insufficient educational capabilities for an increasing number of students, a shortage of skilled and qualified teachers and an increase in inequality between elite education institutions and mass education institutions, in increasing access to higher education (COMPETEN-SEA, 2017). To cope with these challenges, Southeast Asian countries have initiated fundamental educational reforms, which have been possible because of the rapid economic development in this region for the past 20 years. As a critical part of the educational reforms, ICT serves as a solution to provide marginalized groups with access to high quality resources, and therefore ICT integration in higher education has seen a tremendous growth. For instance, Malaysia, Indonesia and Philippines all have initiated strong government policies utilizing ICT in higher education services including teaching, learning and education management.

Malaysia

Malaysia believes that its aspiration to transform into a high-income developed nation is dependent on innovation-based economy, which can be made possible by developing quality human and intellectual capital through the improvement of higher education capability. In order to strengthen and empower the national higher education sector, the Ministry of Higher Education (MoHE) has formulated the National Higher Education Strategic Plan (PSPTN) in 2007 (Ministry of Higher Education Malaysia, 2011). PSPTN has four phases of implementation, namely phase 1 "laying the foundation" from 2007 to 2010,



phase 2 "strengthening and enhancement" from 2011 to 2015, phase 3 "excellence" from 2016-2020, and phase 4 "glory and sustainability" beyond 2020. In PSPTN, e-learning has been identified as one of the 21 Critical Agenda Projects (CAPs), therefore all higher education institutions (HEIs) should be involved in executing the planned activities to achieve the target of e-learning.

In order to successfully implement e-learning, the MoHE launched a standard, national policy on elearning, which is the National E-learning Policy (DePAN) in 2011 (COMPETEN-SEA, 2017). Providing guiding principles for the deployment of e-learning in Malaysian HEIs, DePAN mainly focuses on enabling Malaysian HEIs to improve teaching and learning. The first version of DePAN is composed of five pillars, which are infrastructure, organizational structure, curriculum and content, professional development and acculturation. In 2015, the MoHE upgraded the first version of DePAN. The new version of DePAN consists of six domain areas, namely infrastructure and info-structure, governance, online pedagogy, e-contents, professional development and acculturation.

In 2015, the Ministry of Education launched the Malaysian Education Blueprint for 2015-2025 (Higher Education), and identified 10 shifts, namely holistic, entrepreneurial and balanced graduate, talent excellence, nation of lifelong learning, quality TVET graduates, financial sustainability, empowered governance, innovation ecosystem, global prominence, globalized online learning and transformed HE delivery, to spur excellence in higher education (Ministry of Education Malaysia, 2015). As one of the ten shifts, the "Globalized Online Learning (GOL)" intends to expand access to quality education for people in Malaysia and the global community, to improve the quality of teaching and learning, to reduce the cost of delivery, and to build the Malaysia education brand globally especially in niche areas. To achieve the goals of GOL, the Ministry introduced three main strategies (Ministry of Education Malaysia, 2015). The first strategy is to facilitate the setup of a comprehensive GOL ecosystem, which is composed of a high level of recognition in online learning from all stakeholders, a competent workforce who can apply technology to course content development, and a reliable cyber infrastructure. The second strategy is to establish GOL platform administrative structure to oversee the GOL implementation. The last strategy is to build global visibility and gain global prominence through GOL, especially in niche areas where Malaysia possesses a distinctive edge, such as the Islamic banking and finance, science and technology relating to the tropics, and eastern cultures.

As one of main focuses of GOL, MOOCs play a critical role in providing widening access to higher education in a cost efficient manner. In 2013, a private university called Taylor's University began to offer the first MOOC course in Malaysia on the platform of OpenLearning, which is an Australian education technology company (COMPETEN-SEA, 2017). In September 2014, the MoHE launched four first year undergraduate common compulsory courses, which are Islamic and Asian Civilizations provided by the Universiti Putra Malaysia (UPM), Ethnic Relations by the National University of Malaysia (UKM), Entrepreneurship by the Universiti Teknologi MARA (UiTM) and ICT Competence by Universiti Malaysia Sarawak (UNIMAS). It brings together all first-year students from all 20 public universities on a single platform, which marks the first attempt of Malaysian public universities utilizing MOOCs. In the updated version of DePAN, each public university is asked to develop at least three MOOCs courses. The MoHE has also required each of the 20 public universities to develop and offer 15 MOOCs courses by 2020 (COMPETEN-SEA, 2017). MOOCs courses are categorized into three areas, respectively university common courses, niche areas, and lifelong learning.

Officially launched in 2015, Malaysia MOOC is the world's first nationally coordinated online learning initiative. All 20 public universities in Malaysia offer courses on the official MOOC platform - OpenLearning. As of August 15, 2019, there were 407 courses offered through the Malaysia MOOC initiative on OpenLearning.com, and 334,245 students registered (Openlearning, n.d.). In addition to public universities, some private universities also created and implemented MOOC programs through platforms of OpenLearning, FutureLearn, edX and so forth (COMPETEN-SEA, 2017). To take a step further, the Malaysian Qualifications Agency (MQA) launched the Guidelines on Credit Transfer for MOOC in 2016, which "is designed to provide a clear mechanism that can be used by Higher Education Providers to award credit transfer for MOOC undertaken by prospective or registered students in higher education institutions" (Malaysian Qualifications Agency, 2016). Malaysia is at the forefront of e-



learning as it is the first country in the world to develop a national policy on credit transfer for MOOC.

Indonesia

In Indonesia, only about 30% of the high school graduates go to college, and as of May 2018 the enrollment rate of the total 4,607 Indonesian HEIs was around 33.5% of the higher education-age population (Pannen, 2018). Although increasing access to higher education is one of the top priorities, implementation of policies is very difficult because of the geographical distance of the nation, cultural and ethnic diversity and economical variation. This brings forward the necessity of introducing distance education, and many educators believe that open and distance education have the potential to improve education and the standard of living in Indonesia because Indonesian learners are geographically dispersed. In fact, as the first country in Southeast Asia to mainstream distance learning within the education system, Indonesia has a long history of open and distance learning. The first Open University, Open University of Indonesia, or Universitas Terbuka (UT), was established early in 1984 to offer access to higher education for high school graduates who were not able to attend conventional universities because of economic or geographical constraints (COMPETEN-SEA, 2017; UNESCO Asia and Pacific Regional Bureau for Education, 2013).

In 2012, a new law, Law Number 12 of Year 2012 on Higher Education, was enacted, and Section 31 of the Law states that distance education "should be provided in various forms, modes and scopes supported by study facilities and services and by an assessment system to ensure the quality of graduates according to the National Higher Education standards". The aims of distance education, according to the Law, are to provide "higher education for community groups who cannot attend class on a face-to-face or regular basis" and to "expand access to and support higher education services in education and learning" (Republic of Indonesia, 2012).

In recent years, the development of ICT has made distance learning more easily accessible. In 2017, the Directorate General of Higher Education (DGHE) of Ministry of Research, Technology and Higher Education officially launched the Indonesian Open and Integrated Online Learning Program (PDITT), which was renamed Indonesia's Online Learning System (SPADA) (COMPETEN-SEA, 2017). This nation-wide MOOC of Indonesia aims to solve the main problems such as the low rate of access to education, low quality of education, and less relevance to employment (Wahidin, 2016). PDITT intends to upgrade the quality of HEIs, to increase access to high-quality HEIs and to provide affordable and flexible learning.

Before launching the PDITT, pilot programs were operated. During the first pilot project (2014.8-2015.1), six HEIs provided 14 online courses and 3,623 students were registered. In the second pilot project (2015.9-2015.12), the six HEIs provided 14 new online courses. The Indonesian government has implemented the regulation on the implementation of distance learning and e-learning in higher education. As the governing body for the implementation of distance learning in HEIs, DGHE has been actively promoting the nation-wide MOOC to HEIs and providing grants for the creation of online learning materials every year since 2012. However, the participation of HEIs in national MOOCs is still relatively low. Inadequate infrastructure in remote areas and incompatible internal policies with distance learning programs are the most salient problems (COMPETEN-SEA, 2017). As of 2018, 776 MOOC courses were offered by 51 participating universities and 14,931 students from 176 collaborating universities took part in SPADA (Umali, 2018).

Philippines

Considering the fact that Philippines has a large, culturally diverse, geographically dispersed and economically unequal population, applying ICT into higher education may offer some feasible ways to expand access to educational services. In 2014, the Philippine Senate and the House of Representatives passed the Republic Act No. 10650, which is also known as the Open Distance Learning Act (Republic of the Philippines, 2014). Later that year, the Act was signed into law by the then President Benigno Aquino III (COMPETEN-SEA, 2017). By institutionalizing open distance learning in levels of tertiary



education, the Act aims to "expand and further democratize access to quality tertiary education through the promotion and application of open learning as a philosophy of access to educational services, and the use of distance education as an appropriate, efficient and effective system of delivering quality higher and technical educational services in the country" (Republic of the Philippines, 2014).

In Philippines, ICT policy on higher education was initiated as a part of the national plan on ICT (Brillantes, Jr., 2016). In 2012, Government-wide Medium-Term Information and Communications Technology Harmonization Initiative (MITHI) was launched. ICT program in higher education, the MITHI for Higher Education (MITHI-HE), was also implemented in 2012. The project focus of MITHI-HE includes the learning commons, which would involve innovations for e-learning, e-classroom, and other similar modes of delivery; the ISA covering web development, content management, registration, enrolment, and student/faculty management; MIS-Enterprise, including accounting, human resources, finance, asset management, document management.

In the Philippines, two major institutions have offered MOOCs. The University of the Philippines Open University offered the first MOOC and is currently offering MOOCs, in English and in Tagalog, in various academic fields (COMPETEN-SEA, 2017). The Technical Education and Skills Development Authority has also launched e-TESDA (MOOCs), which aims to improve the technical skills of the working force with less cost.

Issues/challenges and recommendations

The national ICT policies to expand access to and improve the quality of higher education in Malaysia, Indonesia, and Philippines have been implemented. However, several issues and challenges have been raised in all three countries. In Malaysia, as MOOCs is relatively new, HEIs are somewhat skeptical of using MOOCs as part of their teaching and learning process. Therefore, the enculturation of MOOCs can still be further improved. In addition, among the institutions, different approaches were used in developing and managing MOOCs initiatives.

In Indonesia, the outcomes of the pilot programs are not what HEIs expected and multiple issues have been found. For instance, students need enough course preparation and guidance and do not yet have the culture of using ICT for learning, and students and faculty members still highly need face-to-face meetings instead of the technology mediated ones (Wahidin, 2016; Pannen, 2017). In addition, the Internet penetration of Indonesia is unevenly distributed among provinces (Berliyanto & Santoso, 2016). Nevertheless, Indonesian HEIs believe that PDITT is a necessity for Indonesian national development and thus they provide some solutions such as updating lecturer competencies in preparing online learning materials and improving technology, infrastructure, and system application for SPADA / MOOCs to resolve the problems.

The Philippines also reports some problems and challenges including inadequate ICT infrastructure to support interconnectivity and wider public access to government information services, weak regulatory and administrative capacity on ICT development, limited broadband in key cities, and inadequate collective public access to ICT facilities throughout the country. Therefore, some recommendations for future development were suggested. Those are establishment of SchoolNet, development of online distance education programs for short and full credit courses, establishment of virtual classroom, and development of policy and program on e-learning which includes ICT learning.

Table 2: Summary of ICT	policies in	higher education
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Countries	Overview of the key initiatives (year)	Current situation	Related issues and challenges
Malaysia	· National Higher Education Strategic Plan	• As of August 2019, there were 407 courses offered through the	• HEIs' skeptical attitudes towards



	(PSPTN) (2007)	Malaysia MOOC initiative on	MOOCs
	· First and second	OpenLearning.com, and 334,245	\cdot enculturation of
	version of National E-	students registered	MOOCs
	learning Policy		
	(DePAN) (2011; 2015)		
	• Malaysian Education		
	Blueprint for 2015-2025		
	(Higher Education)-		
	Globalised Online		
	Learning (GOL) (2015)		
	\cdot The first Open	• As of 2018, 776 MOOC courses	· Inadequate
	University-Universitas	were offered by 51 participating	infrastructure in
	Terbuka (UT) (1984)	universities and 14,931 students	remote areas
	· Law Number 12 of	from 176 collaborating	· Incompatible internal
Indonesia	Year 2012 on Higher	universities took part in SPADA	policies with distance
	Education (2012)		learning programs
	· Indonesia's Online		· Lack of experiences
	Learning System		and culture in using
	(SPADA) (2017)		ICT among students
	· Republic Act No.	• MITHI4HE project focuses on	·Insufficient
	10650, or Open	the learning commons; the	infrastructure
	Distance Learning Act	integrated school administration;	• Weak regulatory
Philippines	(2014)	MIS-Enterprise, and research.	capacity
	Medium-term IC1		· Inadequate public
	Harmonization Initiative		access to facilities
	for Higher Education		throughout the country
	(MITHI4HE) (2012)		· Inadequate human
			in ICT
			III IC I

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Onwards Quality Assurance: An Assessment of Classroom Learning Activities and Evaluation Strategies in a Tertiary Level Classroom

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ABSTRACT

This study was conducted to determine the learning experiences and evaluative strategies applied by faculty members handling Bachelor of Secondary Education (BSE) program in a tertiary level classroom. The study covered 68 faculty members handling general education, elective, and professional subjects of the program at Cavite State University-Carmona Campus. The study utilized the survey questionnaire adapted from Kesal (2003) to assess the application and utilization of learning activities and evaluation strategies aligned to constructivist approach in the classroom. It was further correlated with educational attainment and length of service. An in-depth interview was also conducted among selected faculty members. Findings revealed that faculty members are generally young. The primary learning activity applied by faculty members is lecture while written examination or test is the most common evaluation tool utilized. There is no relationship between educational attainment and learning activities and evaluation strategies. Likewise, no relationship was established between length of service and learning activities and so with evaluation strategies. Thus, a training/re-training/workshop is proposed to strengthen the implementation of a quality classroom anchored on a constructivist/outcomes approach in instruction.

Keywords: Quality Assurance, Learning Activities, Evaluation Strategies, Constructivism, Outcomes-Based







Introduction

The challenge is diversification in higher education. The current educational landscape demands that graduates are equipped with skills of international standards so as to be able to compete and to be at par with global counterparts. This one reason why there is a need for universities and colleges to establish a robust quality instruction system. Quality learning experiences and evaluation strategies are key to quality instruction.

The necessity for quality instruction is not only dictated by the demand of the rapid changes in the educational system but also as prescribed by the Philippine law. Republic Act 7722, also known as Higher Education Act of 1994, created the Commission on Higher Education (CHED) and mandated the institutions to: "1) set minimum standards for programs and institutions of higher learning recommended by panels of experts in the field and subject to public hearing, and enforce the same; 2) monitor and evaluate the performance of programs and institutions of higher learning for appropriate incentives as well as the imposition of sanctions such as, but not limited to, diminution or withdrawal of subsidy, recommendation on the downgrading or withdrawal of accreditation, program termination or school closure; and 3) identify, support and develop potential centers of excellence in program areas needed for the development of world-class scholarship, nation building and national development, among others" (Section 8, RA 7722).

Likewise, the commitment to provide quality education is embedded in CHED Memorandum Order 46, series of 2012 where the Philippine Higher Education system is mandated to: "1) produce thoughtful graduates imbued with values reflective of a humanist orientation, analytical and problem solving skills, the ability to think through ethical and social implications of a given course of action and the competency to learn continuously throughout life-that will enable them to live meaningfully in a complex, rapidly changing and globalized world while engaging their community and the nation's development issues and concerns; 2) produce graduates with high level of academic, thinking, behavioral, and technical skills/competencies that are aligned with national academic and industry standards and needs and international standards, when applicable; 3) provide focused support to the research required for technological innovation, economic growth and global competitiveness, on the other hand, and for crafting the country's strategic directions and policies; and 4) help improve the quality of human life of Filipinos, respond effectively to changing societal needs and conditions; and provide solutions to problems at the local community, regional and national levels" (Section 2, CMO 46, s2012).

In the light of the above provisions, higher education institutions are expected to live by the mandates of the law and to produce quality graduates that are ready to face the challenges of the world. In response, CHED issued a handbook or a sort of a manual in 2014 to guide universities and colleges in their quest to achieve quality education. It is called "Handbook on Typology, Outcomes-based Education and Institutional Sustainability Assessment". A shift must be implemented based on this manual indicating a paradigm shift from teacher-centered to student-centered learning.

Outcomes-based education, an educational learner-centered paradigm, is consistent with the constructivist philosophy ensuring quality in the classroom. Both accede to the idea that knowledge is constructed through interacting frameworks. Both perspectives assume that "learning environments are cooperative, collaborative and supportive" (p.26, CHED Handbook on Typology).

Given the above provisions, the role of the teacher is very important as he/she must serve as the facilitator of learning and not the ultimate source of knowledge. In a university or college, where the vision focuses on promoting quality education, faculty members must always be reminded and evaluated on the conduct of classroom activities. As regards, a study looking into the processes of learning in the classroom is deemed important.



The Bachelor of Secondary Education (BSE) program prepares students for their future teaching career in the secondary level. Their undergraduate training as exemplified by their college instructors and professors can be imitated and utilized when they become teacher. This is the reason why evaluating learning processes in their classes is important to provide the areas for improvements that may be addressed by the academic institution through faculty training program.

In light of the above, it is worthwhile to determine what classroom learning activities and evaluation aligned in the constructivist framework are used by college instructors handling BSE program. It will, in a way, gauge whether classroom learning activities and evaluation strategies conform with the quality assurance frame of tertiary education

Statement of the problem

In assuring quality assurance and constructivist practices in the classroom, this paper looked at the learning experiences and evaluative strategies utilized by faculty members handling BSE program at Cavite State University (CvSU)-Carmona Campus

Specifically, this study answered the following questions:

What is the profile of the participants in terms of educational attainment and length of service? What is the level of application of various learning activities by faculty members in the campus? What is the level in the utilization of evaluation strategies as implemented by faculty members?

Is there a relationship between the educational attainment of faculty members and the application of learning activities in the classroom?

Is there a relationship between length of service and the utilization of evaluation strategies in the classroom?

Is there a relationship between the length of service of faculty members and the application of learning activities in the classroom?

Is there a relationship between length of service and the utilization of evaluation strategies aligned with the constructivist viewpoint?

Based on the results of the study, what faculty training program may be proposed to enhance implementation of quality learning activities and evaluation strategies?

Study framework

The study is anchored on constructivism as a learning theory and as a "holistic approach to teaching and learning" and on CHED's Outcomes-Based Education principle. These perspectives highlight the role of the teacher and the learner where the teacher serves as the facilitator of learning while the learner as an active receptor of knowledge, using, experiencing and forming meanings out of it.

As outlined by Hein (1991), constructivism is a learning theory where learning is described as an active process; a way to construct meaning; implicates activities by the minds and the hands, and; uses language as it is both contextual and a social activity.

In the same manner, Outcomes-Based Education as stipulated in the CHED handbook provides that knowledge exists in each person's mind and is shaped by experience; that it is constructed, created; that learning is a nestling and interacting of frameworks; that it is learner-centered and learner controlled; and that active learners required but not "live" students required; learning environments are cooperative, collaborative and supportive; among other characteristics (p.26).


Methodology

The descriptive-correlation method was used in this study. This research method is designed to describe the present existing condition. The main objective in using this method is to describe the nature of the situation at the time. Likewise, the method will pursue possible correlation among variables.

The study examined the learning approaches and evaluation strategies used by 68 BSE faculty members at CvSU-Carmona Campus as quality assurance indicators. Survey method was used in the study. Mean and Chi square tests were also applied in the study.

An in-depth interview was also conducted among selected faculty members to provide detailed and comprehensive answers to study problems.

Results and discussions

The following are the findings of the study based on the research problems:

Faculty profile

The profile of the faculty members according to educational attainment and length of service is shown in Table 1.

Table 1 shows that the educational attainment of the respondents is grouped into two, namely: (a) BA/BS and (b) MA/MS. Among the total of 68 respondents, 45 or 66.17 percent were with BA/BS. Those who were MA/MS were 23 or 33.82 percent. The data show that most of the respondent were holders of BA/BS degree.

Educational Attainment	Frequency	Percent
BA/BS	45	66.17
MA/MS	23	33.82
Total	68	100.00

 Table 1.
 Profile of the Respondent Teachers According to Educational Attainment

In Table 2, the length of service of the respondents is shown. Those serving for 1 to 6 years were 53 or 77.94 percent. Ten (10) or 14.70 percent were 7 to 12 years in service and only 5 or 7.36 percent of the respondents were 13 to 18 years in service.

Length of Service (years)	Frequency	Percent
1-6	53	77.90
7-12	10	14.70
13-18	5	7.36
Total	68	100.0

Table 2. Profil	e of the Respondent	Teachers According	to Leng	th of Service
				,

On classroom learning activities

There were 18 indicators to measure the application of constructive learning activities by faculty members. Table 3 shows the mean and standard deviation per indicator. Among the indicators, "I lecture" got the highest mean of 4.8571, followed by "we discuss various coursed topics" with a mean of 4.3929. The indicator "the students keep journal for writing down their learning activities" got the lowest mean of 3.1429.



This means that despite the implementation of an outcomes-based approach in the classroom, faculty members still choose the lecture method. However, it can be seen that other indicators got high means which indicate that although faculty members still conduct lectures, students are given opportunities to do other collaborative work, an indicator of a constructivist-outcomes based perspective.

Learning Activities	Mean	Std. Deviation
I lecture.	4.8571	0.44840
Students keep journals for writing down their learning experiences.	3.1429	1.26825
Students do cooperative work (group or pair work).	4.2143	0.62994
Students make presentation for practice teaching.	3.3571	1.36665
Students help each other learn course topics.	4.2143	0.73822
Students prepare portfolios.	3.3929	1.39680
We use different learning activities (role playing, drama, simulation, etc.)	3.6786	1.15642
Students do individual projects.	3.8571	1.11270
Students do group projects.	4.0000	1.05409
We discuss various course topics.	4.3929	0.78595
We analyze the sample cases about probable problems at schools and try to solve them.	3.8571	1.07890
We do research in various course topics.	3.5714	1.06904
We learn the new topics through self-discovery.	3.7857	0.87590
We do learning activities developing creative thinking.	3.9286	0.89974
Students develop concept maps or diagrams.	3.4643	1.03574
We use various equipment (computers, OHP, video, etc.)	4.2500	0.79931
We use various materials (books, pictures, realia, etc.) together with the main course book.	4.2500	0.84437
Students take part in identifying and planning the learning activities.	3.7857	1.03126

Table 3. Learning Activities applied by Faculty Members in the classroom

Classroom evaluation strategies

Problem 3 traces the evaluation strategies utilized by faculty members in the classroom. There were 11 indicators used to determine the evaluation strategies used by the faculty members. Among the indicators, the indicator "students are evaluated through written exams or test" got the highest mean of 4.6786. The lowest mean of 3.2500 was on the indicator "students decide on how evaluation will be done together with their instructors".

It shows that teachers use structured examinations as a way to evaluate students' performances. Although it is evident on the result that faculty members utilize other means of evaluation, written examination still tops as the main measure utilized by faculty.

The result is consistent with the findings in Table 3 since faculty members still use lecture as the top most learning activity in the classroom. Written examinations are used to gauge understanding of those lectures.

Using the constructivist-outcomes-based approach, there are still other qualitative measures that faculty members may employ in the classroom

Evaluation Strategies	Mean	Std. Deviation
Students' are evaluated through written exams or tests.	4.6786	0.47559
Students' written work (research reports, projects, journals, portfolio, etc.) is evaluated.	4.3929	0.99403
I evaluate students through observing their oral performance work (discussion, presentation, group work, microteaching, etc.)	4.5357	0.63725
I give regular feedback to the students about their environment.	4.6429	0.62148
While evaluating the students, their improvement during learning process is considered.	4.6429	0.55872
The students evaluate themselves.	3.8571	0.84828
Students evaluate their classmates.	3.8214	0.90487
Students evaluate the course.	3.8571	0.93152
Students evaluate the instructor.	4.1429	0.89087
Students decide on when exams will be given together with their instructors.	3.3571	1.36665
Students decide on how evaluation will be done together with their instructors.	3.2500	1.35058
Students' are evaluated through written exams or tests.	4.6786	0.47559
Students' written work (research reports, projects, journals, portfolio, etc.) is evaluated.	4.3929	0.99403
I evaluate students through observing their oral performance work (discussion, presentation, group work, microteaching, etc.)	4.5357	0.63725
I give regular feedback to the students about their environment.	4.6429	0.62148
While evaluating the students, their improvement during learning process is considered.	4.6429	0.55872
The students evaluate themselves.	3.8571	0.84828
Students evaluate their classmates.	?.????	0.90487

Table 4. Evaluation Strategies applied by Faculty Members in the classroom

On relationship between educational attainment of faculty members and the learning activities in the classroom

Table 5 below shows that there is no significant relationship between educational attainment and learning activities since the chi square value of 1.867 is less than the critical value of 5.99. It signifies that the degree earned by a faculty member has no relationship to the learning activities that he/she applied in the classroom.

It can be deduced that the application of the constructivist-OBE approach in the classroom is not a product of someone's degree but could be on the matching of styles that teachers and learners have (Matthew, 2003). It means that learning activities in the classroom are products of other factors and not that of the educational attainment of the teacher.

Table 5. Relationship of Educational Attainment to Ecanning Activities			
	Value	Df	AsymptoticSignificance (2-sided)
Pearson Chi-square	1.867^{a}	2	.393
Likelihood ratio	2.848	2	.241
Linear-by-Linear	1.579	1	.209
Association			
N of Valid Cases	28		

 Table 5. Relationship of Educational Attainment to Learning Activities



On relationship between length of service and the utilization of evaluation strategies

Table 6 below shows that there is no significant relationship between educational attainment and learning activities since the chi square value of 1.052 is less than the critical value of 53.84. It signifies that the degree earned by a faculty member has no relationship to the evaluation strategies that he/she applied in the classroom.

It can be explained that the utilization of evaluation strategies is not dependent on the degree earned of faculty members. Based on the results, it can be understood that the evaluation strategies are linked with the faculty members' learning activities in the classroom. Since lecture is still the topmost method/activity applied by faculty members, written examination is the evaluation strategy used by faculty members.

Table 6. Relationshi	p of Education	nal Attain	ment to Evaluation Strategies
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-square	1.052 ^a	~1%	.305
Likelihood ratio	1.100	1	.294
Linear-by-Linear			
Association	1.014	1	.314
N of Valid Cases	28		

On relationship between length of service of faculty members and the application learning activities in the classroom

Table 7 below shows that there is no significant relationship between length of service and learning activities since the chi square value of 2.533 is less than the critical value of 9.49. It signifies that the number of years in service of the faculty member has no relationship to the learning activities that he/she applied in the classroom.

It can be explicated that the application of learning activities depends not on the number of years a faculty member has served the University but to other factors. Matthews (2003) explained that the teacher must match the learning styles of the students to ensure learning. Meaning, faculty members must understand the characteristics of their students to be able to apply the required methodologies and learning activities in the classroom.

Table 7. Relationship of Length of Service to Learning Activities			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-square	2.533 ^a	4	.639
Likelihood ratio	2.212	4	.697
Linear-by-Linear Association	0.10	1	.919
N of Valid Cases	28		

On relationship between length of service and the utilization of evaluation strategies

Table 8 below shows that there is no significant relationship between length of service and evaluation strategies since the chi square value of 1.221 is less than the critical value of 3.84. It signifies that the number of years in service of the faculty member has no relationship to the evaluation strategies that he/she applied in the classroom.

Again, as indicated in the previous table, the length of service does not determine the utilization of evaluation strategies of faculty members. The use of examination as an evaluation tool can be traced in the learning activities conducted in the classroom.

Table 8. Relationship of Length of Service to Evaluation Strategies			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-square	1.221 ^a	2	.543
Likelihood ratio	1.825	2	.402
Linear-by-Linear	1.124	1	.289
Association			
N of Valid Cases	28		

Table 9 Dalationalis of Longth of Compiles to Eastertion

Proposed enhancement training

Based on the results of the study, it can be seen that there is still a need for a comprehensive training program for faculty members. As regards, the researcher proposed the following:

- 1. Training and re-training/workshop of faculty members on the constructivist-outcomes-based education particularly on learning activities and evaluation strategies.
- 2. Inclusion of the training in the strategic planning program of the campus under the faculty enhancement domain.
- 3. Allocation of budget for the training/re-training/workshop of faculty members.
- 4. Creation of a committee headed by the Campus Human Resource Officer, in coordination with the Department Chairpersons, on the conduct of the training and re-training/workshop of faculty members.
- 5. Inclusion of the annual conduct of said activity in the University calendar of activities.

In relation, the following components for the training/re-training/workshop of faculty members on the strengthening of constructivist/OBE implementation in the classroom is proposed:

Part I. Levelling of Understanding

- A. Orientation on Constructivist Perspective
- B. Orientation on Outcomes-Based Education
- Part II. Training/Re-training Proper
 - A. Constructivist/OBE Learning Activities
 - B. Constructivist/OBE Evaluation Strategies
 - C. Role of Teachers in the Classroom
 - D. Relationship of Teacher-Student in the Classroom

Part III. Workshop

- A. Preparation/identification of Learning Activities
- B. Preparation of Evaluation Strategies
- C. Mock presentations
- D. Role playing

Part IV. Presentation of Outputs

A. General Education Faculty Members



- B. Elective Subjects Faculty Members
- C. Professional Subjects Faculty Members

Part V. Reflection

- A. By Administrators
- B. By Selected Faculty Members

Conclusions

Based on the above findings, the following conclusions were drawn:

- 1. Faculty members in Carmona Campus are categorized into two in terms of educational attainment such as BA/BS and MA/MS. Length of service is classified as 1-6, 7-12, 13-18 years in service. The campus has young faculty members.
- 2. Lecture is the topmost activity conducted in the classrooms by teachers.
- 3. Written examination or test is the top evaluation strategy used by teachers in the classroom.
- 4. Educational attainment has no relationship with the learning activities applied in the classroom as it can be traced from the characteristics of the learners and the matching of teacher and student styles of learning.
- 5. Educational attainment has no relationship with the evaluation strategies as measures of evaluation are dependent on the methodologies/activities used in the classroom.
- 6. Length of service has no relationship with the learning activities applied in the classroom as numbers of years in teaching does not prescribe learning activities that are needed in the classroom.
- 7. Length of service has no relationship with the evaluation strategies as evaluative measures are identified based on the activities conducted in the classroom.
- 8. A training/re-training/workshop for faculty members is a must so as to strengthen the application of constructivist/OBE framework in the classroom.

Recommendations

Based on the findings and conclusions, the following are recommended:

- 1. Training and re-training/workshop of faculty members on the constructivist-outcomes-based education particularly on learning activities and evaluation strategies.
- 2. Inclusion of the training in the strategic planning program of the campus under the faculty enhancement domain.
- 3. Allocate budget for the training/re-training/workshop of faculty members.
- 4. Create a committee headed by the Campus Human Resource Officer, in coordination with Department Chairpersons, on the conduct of the training and re-training/workshop of faculty members.
- 5. Include of the annual conduct of said activity in the University calendar of activities.
- 6. Future researchers must evaluate the constructivist framework on a more comprehensive approach including faculty members, students and the entire learning environment.

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Sangguniang Kabataan (SK) Governance in the Municipality of Suyo, Ilocos Sur: The Role of Youth in Higher Education Institutions

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ABSTRACT

Education is central to development and to the improvement of the lives of young people globally, and as such has been identified as a priority area in internationally agreed development goals, including the Millennium Development Goals and the World Programme of Action for Youth. This study, titled "Sangguniang Kabataan Governance in the Municipality of Suyo, La Union: The Role of Youth in Higher Education Institutions," utilized the descriptive research through total enumeration. A set of questionnaire relative to the degree of participation and empowerment was used. Specifically, this study sought to answer the following problems: (1) what is the extent of participation of the respondents along the following political, social, intellectual; (2) what is the degree of empowerment of the respondents along the following political, social, intellectual; (3) what are the capabilities and constraints along the extent of participation and degree of empowerment. Results revealed that: SK Governance along the different aspects of development needs to be capacitated despite limited participation and involvement; Youth empowerment is essential in good governance. As such, leadership skills must be holistic and enhanced taking into consideration the role of youth in educational development through internationalization and institutional governance.

Keywords: Degree of Participation, Extent of Empowerment, Capabilities and Constraints





Introduction

Education is central to development and to the improvement of the lives of young people globally, and as such has been identified as a priority area in internationally agreed development goals, including the Millennium Development Goals and the World Programme of Action for Youth. Education is important in eradicating poverty and hunger and in promoting sustained, inclusive and equitable economic growth and sustainable development. Increased efforts towards education accessibility, quality and affordability are central to global development efforts

(https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-education.pdf).

The role of youth plays a crucial role in the international scene. It is of this moment that the sustainable development goals should address their needs by upgrading their academic levels through linkages, formal education and even distance learning. This would somehow capacitate them to in making decisions in all aspects of development.

In order to gain valuable information about the vision for youth in the United Nations, it is important to constantly monitor the activities of the Youth Social Policy and Development Division and the guidelines published by the World Program of Action for Youth. Here you will find documents, reports, and discussions concerning ways in which the UN set areas of priority for action in relation to youth empowerment. This information should be gathered and engaged with in order to draft any proposals involving youth participation or addressing the problems facing young people.

Sangguniang Kabataan (abbreviated as SK; lit. "Youth Council"), is a council meant to represent the youth in each barangay in the Philippines. It was put "on hold", but not quite abolished, prior to the 2013 barangay elections. In January 2016, the Sangguniang Kabataan Reform Law was signed into law which made some significant changes to the SK and schedules new elections for October 2016.

The SK Chairman leads the Sangguniang Kabataan. A Local Youth Development Council (LYDC) composed of representatives of different local youth groups supports the SK and its programs.

The role of *Sangguniang Kabataan* (youth) is not only inclined with political leadership. It is worthy to note that they are also molded within the four corners of the classroom both personality and in professional development. In which case, it essential for Higher Educational Institutions (HEIs) to emphasize the character building and values formation in the curriculum especially in the different subjects they are enrolled in.

Statement of the Problem

The study aimed to determine the SK Governance of the Municipality of Suyo, Ilocos Sur. Specifically, it sought to answer the following:

- 1. What is the extent of participation of the respondents along the following:
- a. political;
- b. social; and
- c. intellectual?
- 2. What is the degree of empowerment of the respondents along the identified areas?

3. What are the capabilities and constraints along the extent of participation and degree of empowerment?

Framework of the Study

Under Sections 1 & 3, Article 14 of the 1987 Philippine Constitution which states that: "The State shall protect and promote the right of all citizens to quality education at all levels, and shall take appropriate steps to make such education accessible to all."



"The state shall inculcate patriotism and nationalism, foster love of humanity, respect for human rights, appreciation of the role of national heroes in the historical development of the country, teach the rights and duties of citizenship, strengthen ethical and spiritual values, develop moral character and personal discipline, encourage critical and creative thinking, broaden scientific and technological knowledge, and promote vocational efficiency".

Methodology

The study used the descriptive research design. According to Ethridge (2004), descriptive research can be explained as a statement of affairs as they are at present with the researcher having no control over variable. Moreover, "descriptive research may be characterized as simply the attempt to determine, describe or identify what is, while analytical research attempts to establish why it is that way or how it came to be".

The study was conducted in the municipality of Suyo, Ilocos Sur. The respondents were composed of 80 barangay officials, 48 Tasked Force, and 9 Sangguniang Bayan Members. Since the total number of respondents is below five hundred (500), total enumeration was utilized. The researcher administered the questionnaires during the vacant hours of the respondents from Monday to Friday. A five-point Likert scale was used in data analysis.

Results and Discussion

Extent of Participation along Political

Table 1 presents the extent of participation of the respondents along political. It can be gleaned from the table that the over-all mean is 3.29 described as *moderately participated*. This implies keeping abreast with political functions is essential to carry out the objectives as well as the activities of the respondents. It is indeed important that the respondents are always reminded of their duties and functions as implementers of the law. Be it noted that even in schools, class officers and student body organizations exercise strict implementation of school policies. This also indicates the role of youth in institutional governance through decision-making. Among the indicators, exercising powers in accordance with the law obtained the highest mean of 3.53 described as *highly participated*. This implies further compliance and faithful exercise of their duties and functions in accordance with the law. On the other hand, appointment of secretary or treasurer obtained the lowest mean of 3.15 described as *moderately participated*.

Indicator	Over-all Mean	Descriptive Equivalent Rating
1. SK promulgates resolutions	3.42	Highly Participated
necessary to carry out the objectives of		
the barangay.		
2. SK initiates programs essential to	3.37	Moderately
community development.	Participated	
3. Exercises general supervision over the		
activities of the sangguniang kabataan.	3.29	Moderately
	Participated	
4. Appoints members such as secretary		
and treasurer and other officers as may	3.15	Moderately
deemed necessary.	Participated	
5. Exercises powers in accordance with		
the law or ordinance.	3.53	Highly Participated
Grand Mean	3.29	Moderately
	Participated	

Table 1. Extent of Participation of the Respondents along Political



Extent of Participation of the Respondents along Social

Table 2 shows the extent of participation of respondents along social. It can be gleaned from the table that the over-all mean is 3.42 described as *highly participated*. This would only mean that there is really a need to strengthen the social involvement of the youth through team-building, collaboration and community services. It is important that social involvement must begin in the school whether co-curricular or extra-curricular activities. Among the indicators below, conducting sports fest obtained the highest mean of 4.05 described as *highly participated*. This implies that the youth in the vicinity are active in sports. Primarily, sports develop physical stamina and recreational skills essential to human development. Engagement in sports increases self-esteem and confidence to oneself and in dealing with other people.

Table 2. Extent of Participation of the Respondents along Social					
Indicator	Over-all Mean	Descriptive Equivalent Rating			
1. Conducts SK Night during the	3.79	Highly Participated			
barangay fiesta.					
2. Conducts sports fest among the	4.05	Highly Participated			
youth for sports development.					
3. Conducts environmental	3.43	Highly Participated			
activities like tree planting and					
coastal clean-up.					
4. Conducts medical-dental mission					
in the barangay.	2.70	Moderately Participated			
5. Conducts outreach programs for					
the youth in the barangay including	3.15	Moderately Participated			
cultural shows.					
Grand Mean	3.42	Highly Participated			

On the other hand, conducting medical-dental mission in the barangay obtained the lowest mean of 2.70 described as *moderately participated*. This implies limited medical and para-medical services in the vicinity as conducted by the SK. Primarily, there is also a medical-dental mission in the school as part of student services.

Extent of Participation of the Respondents along Intellectual

Table 3 shows the extent of participation along intellectual. It can be gleaned from the table that the over-all mean is 2.97, described as *moderately participated*. Undoubtedly, there is really a need to capacitate the youth through collaborations, linkages and empowerment both in co-curricular and extracurricular activities not only local but also in international partnerships. Among the indicators below, participating in leadership seminar-training workshop for SK garnered the highest mean of 3.40, described as *highly participated*. Corollary, it is encouraged that SK in the vicinity are likewise invited for leadership trainings conducted by the local and national government to capacitate their leadership styles and approaches. On the contrary, conducting seminars relative to parliamentary procedures obtained the lowest mean of 2.77, described as *moderately participated*.

Table 3. Extent of Participation of the Respondents along Intellectual

Indicator	Over-all Mean	Descriptive Equivalent Rating			
1. Participates in leadership seminar-	3.40	Highly Participated			
training workshop for SK.					
2. Attends local, regional, national and	2.91	Moderately			
international symposium for Youth	Participated				
Development.					



3. SK initiates poster slogan making and other literary activities in the	2.80	Moderately
barangay intended for the youth.	Participated	
4. Conducts seminars relative to		
parliamentary procedures.	2.77	Moderately
	Participated	
5. Initiates seminars and trainings		
relative to community development	2.92	Moderately
like drug awareness and climate	Participated	
change.		
Grand Mean	2.97	Moderately
	Participated	

Degree of Empowerment of the Respondents along Political

Table 4 presents the degree of empowerment of the respondents along political. It can be gleaned from the table that the over-all mean is 3.25, described *as moderately empowered*. There is really a need to strengthen and capacitate the political will of the youth considering their training ground in decision-making as well as their full participation in policy implementation. Among the indicators, exercising powers in accordance with the law obtained the highest mean of 3.40, described as *highly empowered*. This is shown by the fact that SK in the vicinity is well-equipped with the basic policies endowed in the locality. As such following the basic ordinances will train them as well to become politically responsible and accountable with their actions. On the other hand, appointment of secretary or treasurer obtained the lowest mean of 2.98, described as *moderately empowered*. This implies that positions as such must be given weight so as to substantiate SK transactions especially when there are meetings essential to SK activities.

Table 4. Degree of Empo	werment of the Res	pondents along Political
Indicator	Over-all Mean	Descriptive Equivalent Rating
1. SK promulgates resolutions necessary to carry out the objectives of the barangay	3.36 Empowered	Moderately
2. SK initiates programs essential to	3.33	Moderately
community development.	Empowered	
3. Exercises general supervision over the activities of the <i>sangguniang</i>	3.19	Moderately
<i>kabataan</i> . 4. Appoints members such as	Empowered	
secretary and treasurer and other	2.98	Moderately
officers as may deemed necessary.	Empowered	
5. Exercises powers in accordance	_	
with the law or ordinance.	3.40	Highly Empowered
Grand Mean	3.25	Moderately
	Empowered	-

Degree of Empowerment of the Respondents along Social

Table 5 shows the degree of empowerment of respondents along social. It can be gleaned from the table that the over-all mean is 3.20, described as *moderately empowered*. This would only mean that there is really a need to capacitate the social skills of the SK engaging them with activities essential to personality development, recreational and other team building activities.



Among the indicators below, conducting sports fest obtained the highest mean of 3.83, described as *highly empowered*. This implies that involvement in sports create an attitude that is coupled with positivity, good outlook and vibrancy. Hence, it is indeed for the youth to come up with sports development plan that would perhaps guide them in a way to against anti-social risk behavior.

Table 5. Degree of Empowerment of the Respondents along Social								
Indicator	Over-all Mean	Descriptive Equivalent Rating						
1. Conducts SK Night during the	3.67	Highly Empowered						
barangay fiesta.								
2. Conducts sports fest among the	3.83	Highly Empowered						
youth for sports development.								
3. Conducts environmental								
activities like tree planting and	3.37 Moderately							
coastal clean-up.	Empowered							
4. Conducts medical-dental mission								
in the barangay.	3.08 Moderately							
	Empowered							
5. Conducts outreach programs for								
the youth in the barangay including	3.20	Moderately						
cultural shows.	Empowered							
Grand Mean	3.20	Moderately						
	Empowered							

 Table 5. Degree of Empowerment of the Respondents along Social

On the other hand, conducting medical-dental mission in the barangay obtained the lowest mean of 3.08, described as *moderately empowered*. This would only mean that a medical-dental mission is essential to health and community development. As such, SK in the vicinity should include in their projects and projects scheduled activities for medical-dental mission despite limited doctors and nurses.

Degree of Empowerment of the Respondents along Intellectual

Table 6 shows the degree of empowerment along intellectual. It can be gleaned from the table that the over-all mean is 3.09, described as *moderately empowered*. This presupposes the fact that SK in the vicinity are not that active when it comes to activities that geared towards intellectual involvement. Among the indicators below, participating in leadership seminar-training workshop for SK garnered the highest mean of 3.35, described as *moderately empowered*. This is evident by the fact of limited participation and attendance of SK in the vicinity. It is essential that trainings and seminars are relevant alongside with the different needs of the youth especially in community development and internationalization as well.

Table 6. Degree of Empowerment of the Respondents along Intellectual									
Indicator	Over-all Mean	Descriptive Equivalent Rating							
1. Participates in leadership	3.35	Moderately							
seminar-training workshop for SK. 2. Attends local, regional, national	Empowered								
and international symposium for	3.10	Moderately							
3. SK initiates poster slogan making	Empowered								
and other literary activities in the	2.98	Moderately Empowered							
4. Conducts seminars relative to									
parliamentary procedures.	2.88	Moderately Empowered							
relative to community development	3.11	Moderately Empowered							



like drug awareness and c	limate	
change.		
Grand Mean	3.09	Moderately Empowered

On the contrary, conducting seminars relative to parliamentary procedures obtained the lowest mean of 2.88, described as *moderately empowered*. Such being the case, it should be noted that SK within the vicinity should be embraced with the basic knowledge of parliamentary procedures taking into consideration some practical exercises in conducting meetings as well as making of resolutions and the like.

Capabilities and Constraints

It can be gleaned that most of the indicators along the three (3) dimensions are constraints and only few are capabilities. Under political aspect, initiation of programs, exercise of general supervision over activities of SK, appointment of secretary and treasurer are considered as constraints while promulgation of SK resolutions and exercise of powers in accordance with law are considered as capabilities. In social aspect, conduct of dental-medical mission as well as outreach programs for the youth are considered as constraints while conducting SK Night in the barangay, sports fest and environmental activities are considered as capabilities. In intellectual aspect, attendance to local, regional, national and international symposium for youth development, initiation of poster slogan making and other literary activities in the barangay intended for the youth, conduct of seminars relative to parliamentary procedures, and initiation of seminars and trainings relative to community development like drug awareness and climate change are considered as constraints while participation in leadership training is considered as capability.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

- 1. The participation of the youth is essential to institutional governance.
- 2. Empowerment of the youth includes partnership and linkages through internationalization both vocational and formal education.

3. Sustainable development programs for the youth serves as an avenue among educational challenges.

Recommendations

Based on the findings of this study, the following are highly recommended:

Youth leaders may engage in international conferences relative to institutional governance. Schools around the globe should provide projects and programs intended for the youth for personality and professional development.

They should involve themselves in the different youth building activities across national and international to ensure total youth empowerment.

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1987 Philippine Constitution





An Association Study of Department Identification and School Identity of a Private University: An Undergraduate Freshman Study.

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ABSTRACT

School identity reflected a student's emotional involvement in the environment or culture of a school. With this identity, students could show their support to a school through actual behavior. The article aimed to explore the associated with Department Identification and School Identity of freshman in the first year. A sample of 571 freshman was collected through an online survey during 20th November, 2018 to 10th December, 2018. The instrument consisted of School Identity with 4 items, Department Identification with 6 items, and the demographics variables. The regression analysis was employed for model test. It was found that the Department Identification was associated with School Identity strongly. The results suggested that increasing students' Department Identification might be a method to increase students' school identity among undergraduate freshmen. In the future, the researchers could hold activities to help students to know more about their major department.

Keywords: Institutional Research, Department Identification, School Identity







Introduction

To maintain identity of a school is a challenge nowadays. Managers should seek for continued individual support and school commitment by teachers, parents, and students (Lare, 2018). In Taiwan, because of sub-replacement fertility, most every school is facing the serious problem of recruiting students, especially for technical and vocational education system. Thus, the researchers are urged to look for solutions to attract, recruit, and retain potential or current students. To develop a higher school identity might be one of solutions to solve this problem.

The definition of school's identity is "what makes a school into this school, or what are the outstanding features of this school (both in a characteristic and a distinguishing sense) and what the members of the school have in common, what they share, what is true for them as members of the collective community and what could be characterized by a certain degree of durability and continuity" (de Wolff, 2000, p. 53). The researchers could also conclude that school identity as a concept describing the situational determined process of creating a distinct profile of the school (Avest & Bakker, 2007). Therefore, this concept is a process rather than a product. The researchers could explore factors which would influence the formation of school identity to increase students' commitment to the school. Previous studies had focused on religious dimension (Bakker & Avest, 2005) and principals' biography (Avest & Bakker, 2007).

In this study, the researchers aimed to explore factors associated with school identity regarding the students' awareness of the studied department. The purpose of this study was to exam whether higher students' Department Identification results in higher students' school identity among college freshmen.

Literature Review

Department Identification

Kelman (1961) mentioned that the identification is a kind of self-psychological positioning. The concept of identification to be affected by 'Social Identity Theory'. Wann (2006) argued that people will classify themselves into some category of social field and seek for belonging, thus, they can define themselves via the identified identity. Further, those situations will impact individual's behavior (Kwon & Armstrong, 2002). Scholars point out that the identification appeared in the social context, especially emerged during the process of people interaction (Stets & Burke, 2000; Wann, 2006). Based on the developed relationships, one will generate belonging sense toward another in the dynamical process. Therefore, the belonging sense could be changed depends on individual's experience. Shashkin and Morris (1984) distinguished the identification consisted of three domains as 'cognitive': the concepts, beliefs, opinions, thoughts, and the consistency of knowledge; 'emotion': compare the individual's belief toward evaluation or emotional reflection to specified objectives; 'behavior': obvious behavior intention caused by individual's belief.

Murphy, Garcia and Zirkell (2015) point out that the school identity was the important representation of students to show their attitude toward the school when it was put identify into the context of school. Meanwhile, the most representation was positioned by student's perspective on school environmental education. While student has emotional connections to the school environment with school identity, student will sense they are the member of the school and define they are play important role in the school. Meanwhile, they will feel proud to their identity (Finn, 1989; Voelk, 1997).

Studies supported that when individual has identity a specific role, then he or her will represent appropriated attitude and behavior for it (Burke & Reitzes, 1981; Stryker, 1968). On the other hand, such as involvement and engagement in study, a student has identified this role then he or her will preforming suitable behavior for this role. Further, depends on the sense of Department Identification, students not only considering the belonging between themselves and the department but also to measuring the quality of department. Hence, this sense will further impact the department identification as well (Gonyea et al., 2003; Strayhorn, 2010). Besides, Kuh and Hu (2001) identified that high quality of the school administration service will affect higher satisfaction from students, and also effect students' sense of department identification.



Umbach and Kuh (2003) mentioned that the key factor for a student to engage in department's activities and interact with others that depends on student's degree of willing to the participant the activities that hold by the department. Moreover, student's sense of department identification and their study engagement to be affected by the trust of student to teacher (Mitchell et al., 2016), teacher's support (Wang & Eccles, 2012), assist student to solve problem (Ryan & Patrick, 2001), and the students awarded to be respected (Mitchell et al., 2016). Otherwise, better relationships among students and teachers, the teaching methods, the learning climate, and the environment that will caused higher department identification form students (Chiu et al., 2012; Green et al., 2016; Pike et al., 2003).

School Identity

Finn (1989, 1993) describes the term of identification with the school using the positive vocabulary such as 'affiliation', 'involvement', 'attachment', 'commitment', and 'bonding'. He recognized that the 'sense of belonging' means the students aware they belong to the school and was a member of the school. Voelkl (1997) argued that the 'sense of belonging' means students sensed that they are an important person in the sociality of the campus, meanwhile, they are proud of the identity of this identification. From the perspective of the study, the term 'identity' contained widely meaning and consisted of the aspects of cognition, emotion, and behavior. In addition, the 'cognition' and 'emotion' are similar with 'belonging', but 'behavior' was the core factor that affected the sense of school identify (Green et al., 2016). Finn (1989, 1993) concludes a 'participant identity model' to discover the emotional connection between the school and the students. He argued that the emotional connection was weak while the freshman was enrolling into the school. Thus, the student's 'sense of school identity' did not emerge during this period. However, if they have experienced the high quality of teaching, project design, administration service, good relationships with the teacher, and close interaction with classmates that they will open mind to join or participant the school activities actively. On the contrary, if lack of the sense of belonging or involvement with the school for students, it will caused student's alienation, insufficient school identity. Then the school will drop out those students and the social problem was emerged.

The Summary

The purpose of this study was to explore the association of department identification and school identity of a private university based on undergraduate freshman. Thus, according to the related literature review that the researchers concluded the relationships between 'department identification', 'school identity', and the student retention rate. The cause and effect correlation to be supported from reviewed literature then the hypotheses were setting up for further examination via practical data.

Methodology

Framework

The framework of the study shows on the Figure 1. The dependent variables were School Identity that consisted of four items. The independent variables were Department Identification that consisted of six items. The control variables were Gender, Nationality, Family economic status, previous school located areas, and admission entrance.





Participants and Survey

The undergraduate novices of a private university of medical technology in north Taiwan were recruited. A sample of 571 undergraduate novices was collected through an online questionnaire named "Freshman Learning Adaptation Survey" during 20th November, 2018 to 10th December, 2018. The questionnaire of this survey was developed by Taiwan Assessment and Evaluation Association and had been applied to 54 universities in Taiwan since 2017.

Measurements

School identity There were 4 items to evaluate school identity including:

SI1: 'I'm willing to recommend the department I study in to others',

SI2: 'I'm willing to recommend the university I study in to others',

SI3: 'In general, I think the climate for learning in this school is fine', and

SI4: 'In general, I'm satisfied with the school'.

The researchers used a 5-point Likert's scale from extremely disagree to extremely agree to measure the level of school identity. The Cronbach's α of this scale was 0.88.

Department Identification There were 6 items to evaluate Department Identification including:

DI1: 'The learning scopes and goals',

DI2: 'The core abilities should have when graduating',

DI3: 'Planning of required/elective subjects and course regulations',



DI4: 'The association between courses and employment',

DI5: 'Developed abilities of each course' and

DI6: 'Regulations of graduation threshold'.

The researchers used a 5-point Likert's scale from extremely unawareness to extremely awareness to measure the level of Department Identification. The Cronbach's α of this scale was 0.91.

Demographics The researchers collected gender, nationality, family economic status, previous school located area, and admission entrance as demographics data. The researchers defined nationality, family economic status as local students and others, middle or upper class and lower class, respectively.

A previous school located areas referred to an area where a participant's previous graduating school located. Because of the studied setting was located in the Hsinchu city, the researchers grouped Taoyuan county, Hsinchu county, Hsinchu city and Miaoli county into one group. These four administration areas were next together. Other administration areas were grouped together for analysis. There were four major ways of college admission entrance including (1) college examination, (2) screening test, (3) registration and placement and (4) outstanding athletes screening test. The researchers combined college examination and screening test into one group, registration/placement and outstanding athletes screening test into another group for analysis.

Statistical Analysis

Qualitative data was expressed as number and percentage, whereas continuous values were expressed as mean and standard deviation. Demographics variables were compared using Student's t test. The Pearson's correlation coefficients were estimated for variables of school identity and Department Identification. The researchers conducted linear regressions to explore the factors associated with school identity. The researchers also performed variance inflation (VIF) to test the collinearity in all regression models. The researchers considered predictor variable was correlated with other predictor variables when VIF>10. All statistical analyses were performed using IBM SPSS statistics 21. A p-value less than 0.05 was considered to be statistically significant.

Results

Descriptive Statistics and Uni-Variate Analysis

There were 201 male participants (35.20%) and 370 female participants (64.80%) in this study. Five hundred and fifty-five participants were local students (97.20%). The majority if family economic status was middle to upper class (88.97%). The distribution of the studied participants by the previous school located areas was similar between near the studied setting (52.01%) and other areas (47.99%). Admission entrance by examination (59.02%) was slightly higher than others (40.98%). For overall school identity level, male participants (13.04 \pm 3.85) were significantly higher than female participants (12.29 \pm 3.28) (p=0.02). There was no statistical difference between variables and overall school identity level including nationality, family economic status, previous school located areas and admission entrance. (Table 1)

Demographic data of studied participants (N=571)									
	Variables	Ν	%	School Identity mean \pm std	p-value ^a				
Gender					0.02				
	mal	e 201	35.20	13.04 ± 3.85					
	femal	e 370	64.80	12.29 ± 3.28					
Nationality					0.66				
	Local student	ts 555	97.20	12.54 ± 3.51					

Table 1 Demographic data of studied participants (N=571)



Variables		0/-	School Identity	n voluo ^a	
v arrables	11	70	mean \pm std	p-value	
From other countries	16	2.80	12.94 ± 3.49		
Family economic status				0.82	
Middle to upper class	508	88.97	12.57 ± 3.48		
lower class	63	11.03	12.46 ± 3.71		
Previous school located areas ^b				0.40	
Near the studied setting	297	52.01	12.44 ± 3.40		
Other areas	274	47.99	12.68 ± 3.62		
Admission entrance				0.10	
Examination	337	59.02	12.35 ± 3.30		
others	234	40.98	12.85 ± 3.77		

Std.: standard deviation; ^a: two-sample t test; ^b: previous schools from located in Taoyuan County, Hsinchu City, Hsinchu County, and Miaoli County in Taiwan. ^C: College admission by examination or screening test.

Correlation Analysis

Overall school identity was significantly associated with overall Department Identification and items of Department Identification. The correlation coefficients between overall school identity and 'The learning scopes and goals', 'The core abilities should have when graduating, 'Planning of required/elective subjects and course regulations', 'The association between courses and employment, 'Developed abilities of each course', and 'Regulations of graduation threshold' were 0.26, 0.15, 0.19, 0.21, 0.25, and 0.25, respectively. The similar strengths of association were observed between 'In general, I'm satisfied with the school' and Department Identification (correlation coefficients between 0.21-0.22), see Table 2.

Table 2

Correlation matrix of Department Identification and school identity

Variables	Mean ± Std.	DI	DI1	DI2	DI3	DI4	DI5	DI6	SI	SI1	SI2	SI3
DI	21.83 ± 4.33						1		C	11		
DI1	3.47 ± 0.83	0.76**	-									
DI2	3.66 ± 0.90	0.87**	0.64**	-								
DI3	3.57 ± 0.85	0.82**	0.58**	0.66**	_							
DI4	3.80 ± 0.90	0.83**	0.54**	0.66**	0.59^{**}	-						
DI5	3.66 ± 0.85	0.86**	0.58**	0.71**	0.63**	0.73**	160k					
DI6	3.67 ± 0.90	0.81**	0.48**	0.65**	0.63**	0.58**	0.64**	/-/				
SI	12.56 ± 3.50	0.26**	0.15*	0.19**	0.21**	0.21**	0.25**	0.25**	-			
SI1	3.27 ± 1.04	0.38**	0.29**	0.31**	0.25**	0.35**	0.34**	0.33**	0.76**	-		
SI2	3.01 ± 1.09	0.15^{*}	0.06	0.10^{*}	0.15^{*}	0.11^{*}	0.13*	0.19**	0.90**	0.60**	-	
SI3	3.06 ± 1.03	0.14^{*}	0.03	0.09^{*}	0.13*	0.11^{*}	0.16**	0.18**	0.88^{**}	0.48**	0.76**	-
SI4	3.20 ± 0.94	0.21**	0.12*	0.16*	0.18**	0.17**	0.22**	0.18**	0.88^{**}	0.52**	0.72**	0.79**

*p-value<0.05; **p-value<.0001; Std.: standard deviation; DI: Overall Department Identification; SI: Overall School Identity.

Linear regression models

The researchers performed linear regression to explore the association between School Identity and Department Identification. In model 1 and model 2, the dependent variable was identified as overall school identity. In model 1, overall Department Identification was positively associated with overall school identity (β =0.21, p<.0001). Overall school identity of male participants was higher than female participants (β =0.87, p=0.004). In model 2, 'Developed abilities of each course' and 'Regulations of graduation threshold' were positively associated with overall school identity (β =0.56, p=0.047 and



 β =0.63, p=0.006, respectively). Adjusted R² values were 0.08 in both models (Table 3).

Tabl	e 3										
The	Department	Identification	associated	with	overall	school	identity	in	multiple	regressi	on
anal	vsis										

Variables	Ν	Nodel 1	Ν	Iodel 2
variables	β	p-value	β	p-value
DI	0.21	<.0001	-	-
DI1	-	-	-0.11	0.63
DI2	-	-	-0.16	0.55
DI3	-	-	0.15	0.55
DI4	-	-	0.19	0.44
DI5	-	-	0.56	0.047
DI6			0.63	0.006
Gender ^a	0.87	0.004	0.88	0.003
Adjusted R ²		0.08		0.08
a Defense an anount famale DI	· Orignall Damanting an	+ Idontification		

^a: Reference group: female. DI: Overall Department Identification.

The researchers observed each Department Identification item was associated differently with school identity items (see Table 4).

Table 4

The Department Identification associated with school identity items in multiple regression analysis

		- 10	11							Transmitter and the second sec		- 1990	10 11			
		S	SI1			5	SI2			S	SI3			S	SI4	
Variables	Mo	odel 3	Mo	odel 4	Mo	odel 5	Mo	del 6	M	odel 7	Mo	odel 8	Mo	odel 9	Mo	del 10
	β	p-value	β	p-value	β	p-value	β	p-value	β	p-value	β	p-value	β	p-value	β	p-value
DI	0.09	<.0001			0.04	0.0001			0.04	0.0004			0.05	<.0001		
DI1	-	-	0.13	0.048	<u> </u>	-	-0.07	0.32	- \		-0.14	0.05	/ #	-	-0.03	0.61
DI2	-	-	0.01	0.86	A.	-	-0.07	0.41	-	-	-0.08	0.32	//-	-	-0.02	0.74
DI3	-	-	-0.09	0.22	9-)	-	0.11	0.16	-	-/k	0.06	0.43	-	-	0.07	0.33
DI4	-	-	0.19	0.007	-C	8ē	0.009	0.91	-0		-0.02	0.76	-	-	0.01	0.85
DI5	-	-	0.12	0.14	<u> </u>	"G	0.05	0.56	2 - 1	100	0.20	0.02	-	-	0.18	0.02
DI6	-	-	0.18	0.006		<u> </u>	0.21	0.005	<u> </u>	/	0.18	0.01	-	-	0.07	0.28
Gender ^a	0.11	0.20	0.12	0.16	0.27	0.004	0.27	0.004	0.27	0.002	0.28	0.002	0.22	0.007	0.22	0.007
Adjusted R ²	().14	().15	(0.03	0	.04	(0.03	C	0.05	().05	C	0.05

^a: Reference group: female. DI: Overall Department Identification; SI: Overall School Identity.

Overall Department Identification was positively associated with 4 school identity items significantly (β =0.09, β =0.04, β =0.04, and β =0.05 of model 3, model 5, model 7, and model 9, respectively). In the model 4, 'The learning scopes and goals', 'The association between courses and employment', and 'Regulations of graduation threshold' were positively associated with 'I'm willing to recommend the department I study in to others' (β =0.13, p=0.048, β =0.19 p=0.007, and β =0.18, p=0.006, respectively). The only factor of Department Identification items which associated significantly with 'I'm willing to recommend the university I study in to others' was 'Regulations of graduation threshold' (β =0.21, p=0.005; Model 6). 'Developed abilities of each course' and 'Regulations of graduation threshold' were both positively associated with 'In general, I think the climate for learning in this school is fine' in the model 8 (β =0.20, p=0.02 and β =0.18, p=0.01, respectively). In the model 10, 'Developed abilities of



each course' was the only factor of Department Identification items positively associated with 'In general, I'm satisfied with the school' (β =0.18, p=0.02). Each school identity item of male participants was higher than of female participants significantly. Adjusted R2 values were range from 0.03-0.15 among the model 3 to the model 10. VIF values of variables in all models were lower than 10 which indicated factors might not be impacted by correlation with other factors.

Conclusions

College freshmen's Department Identification was associated positively with school identity in the recent study. In detail, a higher level of awareness of 'developed abilities of each course' and 'Regulations of graduation threshold' accounted for a higher school identity, especially in 'In general, I think the climate for learning in this school is fine'. Besides, a freshman who aware of the association between courses and employment might be more likely to recommend the department he/she studied in to others.

Recommendations

Helping freshmen to know the regulations and the abilities should learn during their studding was a method of formatting better school identity. The researchers suggested that administrators of a college provide more communicating channels to announce and to make sure students aware of these information clearly.

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Response to Editor and Reviewers

Manuscript Paper: An Association Study of Department Identification and School Identity of a Private University: An Undergraduate Freshman Study

(Manuscript ID: 70)

06-Auguest-2019

Dear Editor,

We are really appreciated for your kindly assist us to resubmit the manuscript. This manuscript had been improved point-by-point as following comments. Please read below response that we made in the manuscript, thank you very much.

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

Please provide a discussion of previous literature regarding the relationship between department awareness and school identity especially its items or dimensions.

Response: Thanks for the advice. The literature review section was added in the manuscript from page 1 to page 3.

Please also describe the methodology, particularly the measurement instruments and the ways they measure the constructs.

Response: Thanks for the advice. The methodology section was modified in the manuscript from page 3 to page 4.

Statistical procedure to test the association should be explained clearly. A test of association does not suggest the ability to predict.

Response: Thanks for the advice. The analysis process was modified in the manuscript from page 5 to page 7.

Please edit the grammar properly.

Response: Thanks for the advice. The grammar was checked and modified via English editor. **Reviewer: 2**

Comments to the Author



The study is appropriate for the conference them.

Response: We are thankful for reviewer's agreement.

To sustain the quality, the study should further define survey items for both department awareness and school identity.

Response: Thanks for the advice. The methodology section was modified in the manuscript from page 3 to page 4.

The implications of research findings (e.g., higher family economic status were associated with a lower level of school identity) should be explained.

Response: Thanks for the advice. The literature review section was added in the manuscript from page 1 to page 3.

The academic programs that students were majoring should be controlled.

Response: Thanks for the advice. However, the database didn't provide the major data, thus this study cannot put this variable into account.

Reviewer: 3

Comments to the Author

The paper is poorly written in parts and requires very careful editing to the Editor's satisfaction.

Response: Thanks for the advice. The manuscript had been improved largely from literature review, methodology, and results. Please see the revised manuscript.

Reviewer: 4

Comments to the Author

This paper is good and interesting. The introduction need more elaboration. The language needs proofreading or editing.

Response: We are thankful for reviewer's agreement. The introduction had been modified, and the grammar was checked and modified via English editor.



Institutional Research on Factors Relating to College Students'Core Competencies and Skills Development

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ABSTRACT

This study aims to identify factors that are related to the development of college students' core competencies and skills. Data were drawn from a survey of 1531 sophomores at the end of 2017 school year. They were used to construct measures of a set of core competencies and skills as well as a number of student's personal factors, teachers' pedagogies and school environments. Analyses revealed that the majority of students did not report significant growth in their competencies and skills after the first two years in college, but did reveal a number of factors that were significantly relating to the self-reported growth. In particular, study shows that overall, student factors have a stronger relationship with the growth of competencies and skills than teacher pedagogies and school environments. Moreover, many individual factors, such as students' academic integration, motivation for college education, spiritual-oriented ambition, self-study ability, college curriculum design and teaching materials and school environments, are significantly related with a number of core competencies and skills even after all other factors were statistically controlled. Implications for further studies and school strategic planning are discussed in the paper. It is hoped that more studies could be replicated to validate those findings and identify potential ways to improve core competencies and skills as a key goal of college education.

Keywords: Institutional Research, Improvement of Core Competencies and Skills, Factors of Learning Outcomes, Cognitive Constructs, Sampling Weight Application







Background of the Study

Over the years, questions about what have been taught and how much students have learned in college have been frequently raised. One particular area is the development of core competencies and skills. As Bok (2006), a previous president of Harvard University, indicated in his book, *our underachieving colleges, that* higher education should pay more attention to this area in order to prepare students to become productive, competitive, and healthy world citizens. Countries across the world also have rushed to adding the development of core competencies and critical skills as a key component in their higher education program. Taiwan is of no exception. In recent years, the Ministry of Education of Taiwan has invested a large amount of funds to assist universities and colleges to ensure students have strong core competencies and skills when they graduate from college.

The questions for educators then become: how to go about the education of core competencies and skills? What can we do to make the development of students' core competencies and skills more effective and efficient?

Answers to those questions are not quite clear. Although previous studies have found that active learning and the teaching approach and certain evaluation methods adopted by teachers, have a significant correlation with the improvement of student learning outcomes (kuh, Kinzie, Schuh, & Whitt, 2005; Pascarella, & Terenzini, 2005). However, they are primarily for subject-matter learning. Education of core competencies and skills is more complex. It may occur in a broader context, and more learning venues and factors are possible. Moreover, it is hard to objectively evaluate those competency abilities. Good measurement tools for assessing those abilities are hard to find. Hence, to understand their development outcomes is a very complex and difficult task. It will definitely require a more holistic approach to gain a deeper understanding the teaching and learning of core competencies and skills. More research studies are definitely needed.

Purpose of this study

For the above reason, this study attempted to construct a set of core competencies and skills as well as a set of student, teacher and school factors from an existing database. These processed data were then used to evaluate students' improvement of the core competencies and skills after two years in college, and to derive their correlations with the constructed set of factors. Specifically, this study aims to address the following questions:

How do students fare in core competencies and skills after two years in college? Do their evaluations differ by gender and colleges?

What are the correlations among the constructed core competencies and skills with student's personal factors, teacher's pedagogies and school's environments?

Which set of factors has greater explaining power of the variance of core competencies and skills – student, or teacher, and school factors?

Which individual factors are significantly correlated with the improvement of core competencies and skills even after all other factors are statistically controlled?

It is hoped that this study will provide a basis for further replicate studies and action research studies to identify important factors that can be used to design strategies to increase the improvement of core competencies and skills, particularly in the area of student admission policies and process, teaching and counseling approaches and the school environment and culture.

Related Literature Review

The following literature provided a foundation for selecting and constructing cognitive constructs (i.e.,



dependent and independent variables) used in the study. They were briefly summarized below.

1. Definition and applications of core competencies and skills

EU working group (2004, 2007) defined core competence or core key/literacy, as follows: The collection of knowledge, skills and attitudes necessary for individuals to find a job, blend into the society, and facilitate lifelong career development and self-realization for everyone to have the passion pursuing a perfect life. Our study constructs were developed in line with this definition. In recent years, Taiwan's higher education has quickly reached a consensus that modern college students should have core competencies in addition to college degrees. It is generally regard that students' core competencies and skills constitute an important topic for evaluating the quality of colleges and universities. In other words, in addition to emphasizing the professional knowledge of undergraduates, colleges and universities should pay more attention to the key and necessary abilities that are needed to function normally and productively in a modern society. These abilities are crucial for all professional fields, including, for example, academic literacy, innovative ability, humanities and artistic literacy, thinking and expression skills, etc. Those are the core competencies and skills of college students that this research study aims to explore.

Therefore, this study constructs the following core competencies and skills factors: integrate core competencies and skills, humanities and artistic literacy, personal development and control ability, interpersonal interaction skills, basic science and technology application skills, thinking and expression skills, critical thinking and analysis capabilities, self-directed learning ability, professional knowledge and innovative ability, career development related ability, and language writing ability. Then, this study divided the 11 core competencies and skills into 4 basic literacy, which are "composite measure of core competencies and skills", "self-discipline and people's skills", "academic literacy", and "professional literacy".

2. Definition and applications of student's personal factors

Many studies have found that student engagement in learning is related to learning outcomes. (e.g., Terenzini, P. T., Springer, L., Pascrella, E. T., & Nora, A., 1995; Tinto, V., 1993). This study organizes the evaluation meaning of learning input from the literatures and divides it into cognitive, emotional and behavioral dimensions (Chapman, 2003; Fredricks, Blumenfeld, & Paris, 2004; Tsai, Wu, 2019). Fredricks et al (2004) pointed out that: 1) Behavioral engagement refers to the important behavioral representations of learners in the process of participating in learning tasks, such as frequency of participation, attention, effort and concentration; 2) Emotional engagement: refers to the learner's participation in learning tasks with positive emotions during the learning process, such as learning motivation, enthusiasm, and academic integration; 3) Cognitive engagement: During the learning mission, deep learning strategies are used to build complex knowledge structures and to make positive self-adjustments, for example, learning ambition and learning strategy. In addition, student engagement in learning includes students' active learning and time commitment. Active learning involves students taking the initiative to participate in the course, study, discussion and presentation. Studies found that when teachers use curriculum design to allow students to analyze and review materials to promote highlevel thinking and encourage students to reflect on what the meaning of the implementation process is for themselves, students would show higher learning outcomes (Austin, 1993; Pascarella & Terenzini, 2005; Peng, 2010). Therefore, this study constructs the following seven students' personal factors: efforts for study, learning motivation changes, academic integration, motivation for college education, spiritual/Material ambition (aspiration), and learning achievement motivation.

3. Definition and applications of teacher's pedagogies and school environments factors

In the past 20 years, universities and colleges in the US have paid more and more attention to the effectiveness of teacher teaching. The teaching paradigm has evolved from the early "course centered"



and "teacher-centered" to the current "student-centered". In higher education, the "Scholarship of teaching and learning" has also received more and more attention, and funds have been provided to encourage teachers to invest in teaching, learning and research. Teachers are considered to be both a teacher and a learner. It is necessary to value the opinion of the students and make teachers and students learn from each other (Boyer, 1998; Schuster, 1993). There are many studies on university teaching methods. For example, Pascarella & Terenzini (2005) pointed out that lecture-based teaching is most commonly used in universities, but for students with higher levels of cognitive development (such as those who need critical thinking and problem-solving skills), the discussion method is more suitable. Therefore, many studies found that when teachers design their curriculum and learning environments into a friendly and free discussion mode, they will help increase students' learning willingness and learning efforts (Ryan & Patrick, 2001).

In addition, students' satisfaction with school administration and environmental support are also important factors of students' learning outcomes (Zhang, 2006; Chickering & Gamson, 1987). As to time commitment, studies found that time spent on learning is positively related to academic success (Van Den Berg & Hofman, 2005). Hence, teachers' pedagogies and school environments need to be considered in all studies of factors relating to learning outcomes.

Data Source

Data used for this study were drawn from an online "College Students' Learning Experience Questionnaire Survey". The questionnaire included several sets of items of self-assessment of students' motivation for college education, knowledge and skills development, as well as the satisfaction of teaching methods and school environment and equipment. Responses to those items were used to construct measures of core competencies and skills and students' personal characteristics for this study. Details are described in the following section.

The subjects of the survey were the sophomore class at the end of school year in 2017. A total of 1531 sophomores were surveyed, but only 718 sophomores completed the survey within the survey time frame, yielding a response rate of 47%. This study was originally a census survey and should be representative, but because of the response rate was less than expected, the sampling weights is used to enhance the representativeness of the sample. The following are the steps and methods used to compute sampling weights.

To minimize the potential representation bias brought forth by the responding sample, sampling weights were computed and applied in all statistical analyses. Sampling weight for each subject is the inverse of the selection probability within each of the 42 homogenous subgroups defined by the freshmen year GPA (grouped in 3 levels), student gender and seven colleges, adjusted by response rate. Since it was a census survey, the original selection probability is 1, each student represents only him- or her-self. If the subgroup response rate was $\frac{1}{2}$, then the selection probability become $(1 \times \frac{1}{2}) = \frac{1}{2}$. Inverse of $\frac{1}{2}$ is 2, meaning the respondent represents 2 persons in the subgroup. The application of sampling weights will bring the responding sample back to the original population group as shown in Table 1.

Table1. Distribution of responding sample and population by colleges

	Responding	Sample	Weighted (i.e. Population)
Colleges	Number (response %)) % distribution	Number and (% distribution)
Social science & humanity	81 (48%)	11.28	169 (11.04)
Life science	50 (50%)	6.96	100 (6.53)
Engineering	173 (46%)	24.09	373 (24.36)



Technology management	112 (47%)	15.6	239 (15.61)
Electrical & computer science	133 (84%)	18.52	158 (10.32)
Nuclear science	79 (37%)	11	214 (13.98)
Physical science	90 (32%)	12.53	278 (18.16)
Total	718 (47%)	100	1,531 (100.00)

Variable Construction

As mentioned earlier, variables used in this study were constructed from the data collected by the 2017 College Student Learning Experience Survey. Those variables include 11 measures of core competencies and skills in four broad categories, 7 students' personal factors, 4 teacher's pedagogies and 2 school environment factors. The variables' item contents, Cronbach alpha value, and the scoring scheme for each variable are presented in Table 2 to 4, respectively for core competencies and skills, student personal factors, and teacher and school factors. The inclusion of multiple items in each variable was based on the results of factor analysis (not included in the tables).

Table 2. Constructs of Core Competencies and Skills

Constructs	Measurement items	Cronbach Alpha					
Α	. Composite measure of core competencies and skills						
Composite measure of core competencies and skills	 Caring for social justice and well-being; Basic humanistic qualities; Spirit and ability of dedication; Self-discipline and self-examination; Ability to interact with others; Aesthetic and artistic appreciation; The ability to learn for life; Basic health knowledge; Independent critical thinking 	0.82					
	B. Self-discipline and people's skills						
Personal development and self-control ability	 Development of your own values and ethical standards; Determine your future career goals and direction; Develop good exercise habits; Ability to manage your own emotions; Ability of time management; Identify right and wrong, good and evil; The ability to make decisions; Improve the ability to deal with people, cope with advance and retreat 	0.80					
Interpersonal interaction skills	 I can actively expand the interpersonal social network; I am more aware of my prejudice or stereotype of others; I can actively seek opportunities to learn the meaning of different cultures; I know more about who I am and know what is important to myself 	0.84					
C. Academic literacy							
Basic science and technology application skills	 Scientific thinking; Basic scientific and technological application ability. 	0.68					
Thinking and	1. Concise discussion and writing;	0.81					
	*						



expression skills	2. When talking to people, ideas and messages are clearly	
L	and concisely expressed.	
Critical thinking and analysis abilities	 I often question or challenge the views of teachers or classmates until I accept these views is correct; I pursue deep understanding of things rather than surface interpretation; I prefer the requirements of the course to organize and integrate different perspectives, and not simply asking me to memorize relevant information; I develop personal opinions through different opinions. 	0.82
Humanities and artistic literacy	 Appreciation of art, music, and drama; Understanding of literary works; Ability to understand historical importance (such as learning from history); Understanding of different philosophies, cultures, and lifestyles. 	0.82
Self-directed learning ability	 Self-learning, such as: collecting new information and constructing new ideas; When I study a new concept, I will try to explore its meaning and interpretation; When I contact cross-domain knowledge, I can be more extensive acceptance of learning and absorption of new knowledge. 	0.84
Writing ability	 I learned to collect and interpret the materials during the college time; I learned to establish the subject of the report during the college time; I learned to discuss my point of view based on the existing materials during the college time; I learned to show the logic of writing during college time; I feel that my writing ability has improved during college time. 	0.84
	D. Professional literacy	
Professional knowledge and innovative ability	 The ability to flexibly apply the acquired professional knowledge; Sufficient professional knowledge; Ability to innovate. 	0.74
Career development skills	 Gain knowledge and skills suitable for work (such as career preparation); Get career-related information; Adapt yourself to new technologies, different jobs, personal economic conditions, etc. 	0.82

Note: Each item uses the 4-points Likert scale, ranging from 1 (regressed), 2 (no improvement), 3 (improved some) to 4 (improved a lot). The score for each ability or skill is the mean of item sum.

Table 3. Constructs of student's personal factors

Constructs	Massuramontitoms	Cronbach	Scoring
Constructs	wieasurement items	Alpha	scheme



Efforts for study	 How much time does it take each day to prepare for homework; How much time does it take each day to review homework; How much time does it take to complete the homework each day; How much time is spent on classwork activities per day; How much time is spent reading extracurricular readings per week; How much time is spent each week in the library to read books, search for information, discuss homework. 	0.63	Note 1
Learning motivation changes	 1.The first year of learning motivation or willingness to change; 2. Current learning motivation or willingness to change. 	NA	Note 2
Academic integration	 The degree of interest in the department you have studied so far; The degree of understanding of the department you have studied so far; The degree of recognition of the development direction of the department after graduation. 	0.74	Note 3
Motivation for college education	 Exploring knowledge; Developing the ability to think deeply; Self-exploration and realization. 	0.84	Note 3
Spiritual ambition (aspiration)	 Contribute to certain areas; Have an influence on society; Have a fulfilling spiritual life. 	0.67	Note 3
Material ambition (aspiration)	 Have a successful career; Have a rich material life; Have a happy family. 	0.69	Note 3
Learning achievement motivation	 My aim is to be fully versed in the content taught in the classroom; I work hard to behave better than other students; I work hard to avoid being worse than other students; I work hard to avoid having a smattering of the content of the course. 	0.72	Note 3

Note 1. Compute z score for each item by Zj = (sj - item mean) / standard deviation and then get average of item sum for the construct.

Note 2. Scoring of learning motivation change: compute the difference = the current score – the first year score. If the difference is 0, use the current year score, if it is not 0 then it is the current score + (current- 1^{st} year)/2. The higher score indicates a greater change.

Note 3. Score is the average of item sum. Item score is a 4-point Likert scale, ranging from 1 (very dissatisfied), 2 (dissatisfied), 3(satisfied), and 4 (very satisfied).

Construct	Assessment item	Cronbach Alpha	Scoring scheme
Didactic teaching	Explanation of textbooks or handouts	NA	Item score, Note 1
Student-teacher interactive teaching methods	Teachers and students ask questions	NA	Item score
Student cooperative teaching methods	 Students discuss, design, and publish in groups; Work that requires teamwork 	0.80	Average of item scores
Problem-based teaching methods	1.Students select topicsindividually and collect data forresearch reports; 2. Use media ornetwork-assisted instruction;3.Assign creative assignments	0.64	Average of item scores
Curriculum design and teaching materials	 Content and activities can meet the educational goals of the classroom; Meet my ability and level Can cause my motivation for learning; Can meet the learning needs of students; The content of the textbook is moderately difficult. 	0.78	Average of item scores
School environments	 The school has enough space for students to read and study; The school has enough space for students to discuss and exchange. 	0.79	Average of item scores.

Table 4. Constructs of teacher's pedagogies and school environments

Note: The item uses the Likert four-point scale, ranging from 1 (never), 2 (rarely), 3(sometimes), and 4 (often). Score for each factor is the mean of item sum.

Analysis and Results

There are three types of analyses in this study-- descriptive, correlational and multiple regression analyses, to answer questions posted earlier. Results are presented below.

1. Descriptive analysis of core competencies and skills



How did students fare in core competencies and skills after two years in college? Did their performance differ by gender and colleges? This analysis attempted to answer these questions by examining the self-reported performance level. The measurements ranged from 1 (getting worse) to 2 (no improvement at all), 3 (improved somewhat), and 4 (improved a lot).

As shown in Table 5, results show that overall, students did not fare well. The average scores on most constructs of core competencies and skills were below 3.0, meaning not improved at all and some were regressed. Only the composite measure of core competencies and skills scored higher than 3.0. The "professional knowledge and innovative ability" had the lowest average scores (below 2.60). These results indicate that students did not gain much improvement after two years in college.

However, it is interesting to note that students in social science and humanity colleges generally scored higher than students in physical and engineering colleges, except for the basic science and technology application skills.

As for gender difference, male students scored higher than female students in professional knowledge and innovative ability and basic science and technology application skills while female students scored higher than male students in humanities and artistic literacy as well as the composite measure of core competencies and skills.

Table 5. Descriptive analysis of the self-assessment of core competencies and skills by

gender and college

	Total		Male	Males Females		Social science& Humanity		Physical science& Engineering		
Variables	mean	s.d.	mean	s.d	mean	s.d.	mean	s.d.	mean	s.d.
Composite measure of core competencies and skills	3.30	0.48	3.27	0.48	3.36 ***	0.47	3.38***	0.43	3.27	0.49
Professional knowledge and innovative ability	2.52	0.50	2.57***	0.53	2.47	0.46	2.55	0.48	2.51	0.51
Basic science and technology application skills	2.93	0.50	2.99***	0.48	2.84	0.51	2.73	0.48	3.08 ***	0.48
Humanities and artistic literacy	2.58	0.61	2.53	0.61	2.67***	0.59	2.76 ***	0.59	2.52	0.60
Career development skills	2.83	0.51	2.84	0.49	2.81	0.55	2.83	0.50	2.82	0.52
Thinking and expression skills	2.95	0.57	2.97	0.57	2.93	0.57	3.07 ***	0.60	2.91	0.56
Personal development	2.86	0.48	2.88*	0.48	2.82	0.47	2.90 *	0.47	2.84	0.48


and self-control ability										
Critical thinking and analysis abilities	2.85	0.53	2.85	0.52	2.84	0.55	2.89*	0.55	2.83	0.53
Self-directed learning ability	3.07	0.51	3.07	0.50	3.08	0.52	3.12 *	0.50	3.05	0.51
Interpersonal interaction skills	2.97	0.53	2.98	0.51	2.96	0.56	3.08 ***	0.55	2.93	0.51
Writing ability	2.88	0.43	2.85	0.45	2.92 **	0.41	2.97 ***	0.48	2.84	0.41
Total Sample	1531		943		588		408		1123	

Note: *** (p < 0.001), ** (p < 0.01) & * (p < 0.5) indicate that the score differs from that of counterpart group

Descriptive analysis of student personal factors

The results are presented in Table 6. Data show that only a couple of performance measures are different by gender and the college type. In particular, female students had higher 7 measure in motivation for college education and learning achievement motivation than male students while male students had higher measure in material ambition than female students. The rest of other measures are no difference. By college type, students in physical science and engineering colleges had higher measure in the effort for study than their counterparts in social and humanity colleges. For all other factors, there were no differences.

	Total		Males		Females		Social science& Humanity		Physical science& Engineering		
Student personal factors	mean	e.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	
Effort for study	-0.05	3.51	-0.11	3.56	0.05	3.41	-0.46	3.32	0.10 **	3.56	
Learning motivation changes	2.60	1.21	2.63	1.23	2.55	1.18	2.69	1.30	2.57	1.18	
Academic integration	6.33	1.60	6.32	1.54	6.35	1.70	6.41	1.64	6.30	1.59	
Motivation for college education	3.12	0.57	3.09	0.58	3.17**	0.56	3.16	0.56	3.11	0.58	
Spiritual ambition	3.08	0.54	3.10	0.57	3.06	0.50	3.11	0.51	3.08	0.56	
Material ambition	3.15	0.55	3.19**	0.56	3.10	0.53	3.16	0.61	3.15	0.52	
Learning achievement motivation	2.77	0.48	2.75	0.49	2.81*	0.46	2.78	0.52	2.77	0.46	
Sample size	15	1531		943		588		408		1123	

Table 6. Descriptive statistics of student personal factor measures

Note: *** (p<0.001), ** (p<0.01) & * (p<0.05) indicate the significance level of the



differences with its counterpart group's measurement.

3. Descriptive analysis of teacher and school factors

Results of the analysis are presented in Table 7. They show that faculty members in social science and humanity colleges were more likely to use interactive methods (i.e., active teaching approaches) than their counterparts in science and engineering colleges. It is probable that the nature of curriculum in science and engineering fields requires more explanations and illustrations by teachers.

The gender differences appear to reflect the college differences since there were more females than males in social science and humanity colleges.

It is interesting to note that there were no significant differences on school factors by gender and the type of colleges, indicating that the students' perceptions on school factors were basically the same, regardless of gender and the type of colleges.

	Total		Males		Females		Socia Hum	l S. & anity	Physical S. & Engineering	
Teacher & school factors	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
Didactic lecture	3.23	0.77	3.19	0.77	3.28*	0.77	3.18	0.75	3.24	0.77
Student - teacher interactive teaching	2.83	0.69	2.79	0.68	2.89 **	0.70	3.02	0.69	2.76	0.67
Student cooperative learning	2.66	0.75	2.52	0.72	2.88 ***	0.74	3.20 ***	0.64	2.46	0.69
Problem- based teaching	2.56	0.61	2.48	0.59	2.69 ***	0.61	2.84 ***	0.62	2.46	0.57
Curriculum design & teaching materials	2.81	0.41	2.78	0.43	2.86	0.35	2.89 ***	0.36	2.78	0.42
School environments	2.92	0.66	2.91	0.68	2.93	0.61	2.89	0.65	2.93	0.66
Sample size	1531 943		43	588		40	08	1123		

Table 7. Descriptive analysis of measures of teacher and school factors

Note: *** (p<0.001), ** (p<0.01) & * (p< 0.05) indicate the significance level of differences with its counterpart group's measurement.

4. Correlational analyses

What are the correlations of the constructed core competencies and skills with student's personal factors, teacher's pedagogies and school's environment?



The results of the analysis involving all students clearly show that all factors are significantly related with core competencies and skills except for didactic teaching method which is only related to professional knowledge and innovative ability, thinking and expression skills and self-directed learning ability. It is possible that those abilities or skills benefit more from direct explanations and demonstration from teachers.

However, the correlation coefficients are mostly moderate, only 15 coefficients are 0.30 or above (i.e., strongly related). Among the 13 factors, academic integration, had the highest correlation (average was 0.334), followed by student satisfaction with curriculum design and teaching materials (average was 0.284), motivation for college education (average was 0.283) and spiritual ambition (average was 0.281).

Correlation coefficients were also computed separately by gender and types of colleges. Results show that the general patterns of the results are not much different from that generated by the total students, except for that effort of study, didactic teaching, student cooperative teaching, problem-based teaching and school environments are mostly not significantly related to core competencies and skills for students in social and humanities colleges. (Because of space limitation detailed statistics are not included in this paper, but are available upon request.)

Table 8. Correlation coefficients between core competencies and skills with student, teacher and school factors – all students (N - 1531)

Core competencies and skills (CCS)	EF	LM	AI	ME	SA	MA	LA	DT	STI	SCI	BPI	CDM	SE
Composite measure of CCS	.11**	.24**	.37**	.35**	.30**	.19**	.21**)	.12**	.18**	.18**	.41**	.21**
knowledge and innovative ability	.21**	.26**	.50**	.29**	.29**	.15**	.30**	08**	.26**	.17**	.14**	.45**	.19**
Basic science & technology applications	.10**	.12**	.5**	.26**	.28**	.22**	.22**			12**	09**	.23**	.21**
Humanities & artistic literacy	.14**	.13**	.21**	.26**	.24**		.08**		.29**	.24**	.28**	.22**	.19**
Career development skills		.26**	.38**	.24**	.26**	.24**	.21**		.13**	.18**	.15**	.24**	.18**
Thinking & expression skills	.05*	.14**	.23**	.25**	.24**	.10**	.13**	07*	.09**	.11**	.12**	.17**	.15**
Personal development & self-control ability	.06*	.29**	33**	.33**	.28**	.21**	.22**		.12**	.15**	.17**	.30**	.22**
Critical thinking & analysis ability	.13**	.24**	.36**	.30**	.28**	.12**	.28**	.11**	.16**	.11**	.16**	.32**	.10**
Self-directed learning ability	.24**	.23**	.44**	.36**	.39**	.23**	.32**	.06*	.15**	.14**	.13**	.30**	.22**
Interpersonal interaction skills	.05*	.18**	.30**	.27**	.32**	.24**	.12**		.11**	.17**	.21**	.22**	.16**
Writing ability	.07**	.14**	.23**	.20**	.21**	.09**	.17**		.20**	.15**	.21**	.26**	.13**

Note 1: EF - effort of study;

AI – academic integration;

SA – spiritual ambition;

LA - learning achievement motivation;

SCT – student cooperative teaching

DT - didactic teaching;

LM – learning motivation changes;

ME – motivation for college education;

MA-material ambition

STI - student teacher interactive teaching

PBT – problem-based teaching

CDM – curriculum design & teaching materials



SE – school environments

Note 2: Blank space denotes correlation is not significant at the .05 level.

5. Multiple regression analysis

Multiple regression analysis was conducted to examine 1) overall explaining power of each set of factors, and 2) individual factors that are still significantly related to core ability and skills even after all other factors are statistically controlled. A large number of statistical tables were constructed. However, because of space limitation of the paper, those detailed statistical tables are not included here but are available upon request. Only key findings are briefly summarized below.

The first set of analyses examined the percentage of variance of each core competency or skill explained by each group of factors separately and jointly on the basis of adjusted R2. Results show that most of the adjusted R2 are between 0.20 and 0.43, meaning around 20 % to 43 percent of variance can be explained by the factors. The strength of the relation is considered as moderate.

The results also show that all factors together, as expected, have a higher adjusted R2 than that derived separately by student or teacher and school factors. Moreover, students' personal factors as a group have a greater explaining power than teacher and school factors combined, except for humanity and artistic literacy and writing ability in which teacher and school factors exhibit a greater adjusted R2 than student factors.

The second set of multiple regression analysis is to identify which individual factors are still significantly correlated with the improvement of core competencies and skills even after all other factors are statistically controlled.

In the previous correlational analysis, we have found that most student, teacher and school factors are significantly related to the improvement of core capabilities and skills. However, those factors are likely to be inter-correlated. To further identify important factors for each core ability or skill, we used the standardized multiple regression coefficients to find the answers. Using coefficient (β) with p < 0.001 as the criterion, it was found that each ability or skill has a different set of factors that are related to its improvement, indicating the complexity of cultivating core competencies and skills, namely, different approaches may be needed.

However, consistent with findings from correlational analysis presented earlier, certain factors appeared more often than others on the list. For example, based on the analysis results of all students, academic integration (i.e. degree of comfort with the study program) was listed 8 out of 11 core abilities and skills. It was followed by spiritual ambition (7 times), school environments (7 times), motivation for college education (6 times) and material ambition (5 times), problem-based teaching method (4 time) and curriculum design and teaching materials (4 times). The rest of factors were listed less than 4 times. If further future studies confirm this finding, it will be a sound basis for choosing priorities for improvement emphasis.

Summery and Discussion

1. Conclusion

In view of the importance of core competencies and skills, this study specifically explored the relevant factors in order to identify strategies to enhance these competencies and skills. In spite of the limitation of data, such as the lack of direct assessment of other competencies and skills, most of the findings are consistent with the assumptions derived from previous literature of learning outcome studies. Key findings are summarized and discussed as follows:

Overall, this study found that self-assessment of the improvement of growth of core abilities and skills during the two years in college was poor. On the average, only the composite measure of those abilities and skills show a little improvement. All others had no improvement at all or even regressed. Reasons



for this phenomenon are unknown. Further studies are needed to examine whether this is only a phenomenon of study fatigue after stressful preparation for college entrance in high school and thus are not fully engaged in studies. We need to follow up to see if students would make a strong improvement in the remaining years in college.

This study shows that factors associated with the growth of each core ability or skill are not consistent. There are also differences by students in different colleges or academic programs. Moreover, the selected factors in this study did not have high explaining powers for most abilities and skills. As mentioned earlier, most of the adjusted R2 in multiple regression analyses were between 0.20 and 0.40, only *professional knowledge and innovative ability* got 0.43. These results indicate that finding ways to improve core abilities and skills is a very complicated task. Each ability or skill may need to be examined independently. Hope more studies would help identify effect approaches

One interesting finding is that, inconsistent with results of previous learning outcome studies, the study effort was not highly related with the improvement of core competencies and skills. It is probable that unlike subject matter knowledge that can be acquired from specially designed courses and learning materials, the attaining of core competencies and skills is a much more complicated process than that of specific academic studies. Opportunities and environments may play an important role.

Of the whole set of potential factors, the following factors were found to be significant. They were highly related with many abilities and skills even after all other factors were statistically controlled. They are academic integration, satisfaction with school environments, spiritual ambition, and motivation for college education, satisfaction with curriculum design and teaching material and problem-based teaching methods. We hope more studies can be replicated in the future to verify the findings because they can provide useful information for designing effective programs for core competency abilities and skills, such as admission processes, student counseling practices, special coursework, and extra-class activities.

2. Recommendations

It is necessary to enhance professional knowledge and innovative ability through the academic integration. From the results of this study, the "academic integration" has a positive and moderate correlation between professional knowledge and innovative ability (0.5), so each department should hold more activities during the period of entering the university, helping them know more about the department and improve their department satisfaction

The overall core literacy and skills growth is not ideal. Focus on the importance of students' personal factors for cultivating core literacy: enrollment should consider the academic integration, motivation for college education and spiritual ambition. However, we must also think about factors that are significantly related to core literacy and skills. What else? These factors are important and deserve further exploration. First of all, among the student's personal factors, there are often the academic integration, motivation for college education, and spiritual ambition. Therefore, when enrolling students, the university must think about the students recruited, and must be interested in the department and the degree of understanding emphasized by the academic integration, to see if they choose the correct department. Moreover, the motivation for college education also needs to be considered to ensure students have clear purpose of entering the university. How to combine entering college with self-achievement? Secondly, it would be helpful to know about students' ambition of entering college? Is it a spiritual one or a material one? Both of these are important for students to build their own learning opportunities and motivation.

All in all, the factors related to core competencies and skills are quite complex. Although the results of this study show that there are significant positive correlations between them and many student personal and teacher and school factors, there are several that are negatively correlated and require further testing, including effort for study and didactic teaching. We hope that in the follow-up study, we can revisit this topic and collect the same information from the graduates before leaving school to further analyze the results of the study. We also hope that other schools can replicate studies and test the reliability of the research results so that they can be appropriately applied to improve school-related strategies, such as



admission processes, teaching methods, curriculum design and student counseling programs. In addition, we hope researchers can collaboratively develop or select objective testing tools that directly assess core competencies and skills. We should all agree that core competencies and skills are essential curricula of our higher education.

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1_Paper84

Corporate Social Responsibility (CSR): Institutional Effectiveness

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ABSTRACT

This study determined the level of corporate social responsibility (CSR) among faculty members and non-teaching staff of John B. Lacson Foundation Maritime University (JBLFMU)-Molo, Iloilo City, Philippines. The participants in this study were the randomly selected forty (40) randomly selected employees of John B. Lacson Foundation Maritime University-Molo who were engaged with the university's corporate social responsibilities (CSRs) for School Year 2018-2019. The study employed quantitative-qualitative research design. The quantitative-statistical tools used in this study were frequency count, percentage, and rank. Results reveal that: 1) the level of corporate social responsibility of the respondents was "high," 2) the respondents agreed that the most dominant corporate social responsibilities (CSRs) were: graduates who have good knowledge and high social awareness, taking into consideration the interest of its students, skills, knowledge, and technology learned inside the classroom are transferred to the community, 3) significant differences existed in the CSRs when the respondents were grouped according to teaching and non-teaching, 4) five "themes" that were derived from the qualitative inputs, narrative descriptions, remarks, and views about the CSR at the maritime university (JBLFMU-Molo) include: "sustainability of the programs," "help and protect the environment," "active involvement in CSR," "regular activities to benefit the society," and "development of different stakeholders." Majority of the respondents agreed that CSR is an indicator towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university (JBLFMU-Molo).

Keywords: Corporate Social Responsibility, Maritime University, Institutional Effectiveness





Introduction

Universities and colleges are not only called for increasing the bar and performance in education, but also embed social responsibility as part of important things in the higher education system. Helping students become more socially responsible and ethically sensitive is a substantive part or mission of any institutions to prepare as requirement for the new generation of graduates. Corporate social responsibility (CSR) in any organization is an interesting challenge and considered as value-learning process. CRS is the obligation of corporate-decision makers to take action that protects and improves the welfare of the society as a whole, along with their own interest. CSR refers to corporate policies and voluntary initiatives that assure responsibility for the interest of the society. It is an important role of any school as to be agent in socializing students to the attitudes and values of business life. CSR deals with broader responsibility toward society such as economic, legal, ethical, and philanthropic, aside from gaining or increasing profit. It has various dimensions, one of which is ethics, this means that corporations or educational institutions shall learn to protect and enhance the society in which they are operating with (Mayasari, & Herlina, 2011).

Corporate Social Responsibility (CSR) is an important area of research among universities and colleges simply because it plays a critical role in developing the next generation of leaders and managers who will lead any nation in the future. The universities should not be profit-driven entities because they are large employers and organizations in their own right. Universities should play a special role in ensuring the moral and ethical considerations as important aspects in all their business endeavors. CSR must create a good deal of positive publicity and good will to the community. Universities should be administered based on good governance emphasizing transparency, taking into consideration the interest of different stakeholders including students, employees, parents, alumni, and communities. Universities should be established with the aim of serving the people in the region. They should produce graduates with good knowledge and high social awareness, graduates equipped with knowledge from classrooms to solve community's problems. Universities and colleges should conduct research to develop knowledge and the passing of such knowledge to the community, should have missions for preserving and nurturing the religious, cultural heritage, and environment of any country (Kimpakorn, Prugsiganont, Waters, Promburon, & Sampet, 2011).

CSR refers to the obligation of organizations to promote human welfare in every operation that they have. Organizations must be responsible to the society they are connected with. This obligation includes universities and colleges, which conducted activities to help the society and to develop students' mindsets about the other side of life and hence would see the world more practically. CSR attempts should be planned carefully in order to shape the students' perception and attitudes regarding the significance and benefits of CSR's activities (Tanchaisak, 2011). It is an ethical and moral dimension of any organizations or firms towards their stakeholders, both internal and external that successful organizations strive to succeed in achieving healthy society that is sustainable. It also improves competitiveness of the company through process, product-benefit, and positive financial performance. Moreover, in higher educational institutions, this is called University Social Responsibility (USR), which in wider scale should not only meet all local, state, federal laws, and regulatory requirements, but also treat as opportunity for improvement. Schools should stress ethical behavior in all their stakeholders' transactions and interactions. Higher ethical conduct should be a requirement of the school that should be monitored seriously and regularly. The schools should address their current and future impacts in the society in a proactive manner and should accomplish ethical accomplishments and practices in all their interactions. The schools should define performance or outcome indicators to ensure that the social consciousness and responsibilities meet the basic requirements and expectations to service to the community (Shawyun, 2011).

A study of Idrus (2011) mentioned that a large part of University Social Responsibility (USR) must be the students who will be useful to the community in general and in their places of work in particular. But, when the universities are unable to change the teaching and learning methodology, these universities fail to deliver its USR. This dilemma requires persistence and better strategic planning by the top university's officials. To be left behind in the acquisition and infusion of necessary knowledge



and skills in the community have direct impact on the USR, because these are considered aspects of its mission. School administrators should also looked into them. The researcher strongly stressed that universities must render service to the community in the area of knowledge.

According to Suryani (2011), universities as part of the community have social responsibility, therefore, CSR is a normative concept, multi-level concept, which depends on a variety of perspectives and relationships. This is very important for the university sustainability through integration with community services, to facilitate students to transfer learning in real cases, develop many soft skills, attributes, and technical competencies. In this case, CSR permits the university to extend cooperation with community.

Theoretical Framework

This study was anchored on the theoretical framework advocated by Mazo (2011) of De La Salle University, Dasmarinas, Philippines. That the universities with all their intellectual resources should be morally engaged with social responsibility endeavors. Leading universities in the world are getting in the wagon to concretize their social responsibility. University social responsibility (USR) encourages universities to take cognizance of the progress and transformation that they have undergone. That is, they have to go down from their ivory towers and take steps in realizing genuine development through social responsibility. Universities capitalize the individuals' capacity to change people's condition, improve families' welfare, which make ripple effects of development in the succeeding levels of society. Universities can directly contribute to community by addressing poverty, where the challenge to realize social responsibility is greater. The university is one of the stakeholders in the development process of community. It is essential that the university's initiative should not be in contrast with community needs and resources. For the university to be fully effective in its social responsibility, it should implement with community programs that are integrative, inclusive, and context sensitive (Mazo, 2011; Millican & Bourner, 2011).

In the study of Kimpakorn *et al.*, (2011) CSR is considered one of the important areas in research in the different universities of the world because it helps in developing the next generation of leaders and managers who will lead the nations in the future. Universities should not be profit driven, they should play special role in ensuring the moral and ethical considerations for the universities to have good reputation. Universities should also produce graduates with good knowledge and high social awareness towards community's problems and nurturing the religious, cultural, and heritage environment.

Statement of the Problem

The present study determined the corporate social responsibility (CSR) of teaching and non-teaching staff of the maritime university, specifically, JBLFMU-Molo. In order to understand the study, the specific questions were advanced:

1) What is the level of corporate social responsibility (CSR) of the respondents as an entire group and when classified according to different categories such as (a) age, (b) sex, (c) employment classification, (d) number of years in the university, (e) highest educational attainment (HEA)?

2) What are the most dominant CSR views of the respondents?

3) What are the least dominant CSR views of the respondents?

4) Are there significant differences in the level of CSR among the respondents when classified according to (a) age, (b) sex, (c) employment classification, (d) number of years in the university, (e) highest educational attainment (HEA)?

5) What are the comments of respondents on CSR of JBLFMU-Molo?

6) What CSR indicators are considered towards the attainment of excellence in MET?

Conceptual Framework

The present study determined the corporate social responsibility (CSR) of teaching and non-teaching staff of the maritime university. In this study, respondent related factors that were considered included



the respondents' age, sex, employment classification, number of years in the university, and their highest educational attainment. Figure 1 reflects the schematic presentation of this study.



Figure 1: Corporate social responsibility (CSR) as influenced by respondent-related factors

Method

Respondents of the Study

The respondents of this study were the forty (40) randomly selected employees of John B. Lacson Foundation Maritime University-Molo who had been engaged with the university's corporate social responsibilities (CSRs). The respondents were classified according to sex as male = 19, 47% or female = 21, 53%; age as 51 and above = 10, 25%, and 50 years old & below = 30, 75%; employment classification as teaching = 27, 68%; or non-teaching staff = 13, 32%; number of years in the university as 11 years & more = 18, 45, 1-10 years = 22, 55%; and highest educational attainment as bachelor degree = 11, 27%, master's degree = 21, 53%, doctorate degree = 8, 20%. Distribution of the respondents is reflected in Table 1.

Category	f	%
Entire Group	40	100
Age		
51 years old and above	10	25
50 years old and below	30	75
Sex	102 1	1
Male	19	47
Female	21	53
Employment Classification	S // //	
Teaching	27	68
Non-Teaching	13	32
Number of Years in the University		
11 years and above	18	45
10 years and below	22	55
Highest Educational Attainment		
Bachelor's Degree	11	27
Master's Degree	21	53
Doctorate Degree	8	20

 Table 1: Distribution of the Respondents

As to the fields of specialization, respondents whose field of specialization is in library science were 4 (10%), professional or marine engineers were 15 (38%), math majors were 4 (10%), hospitality and tourism were 3 (7%), general education (GE) were 10 (25%), and curriculum and assessment were 4 (10%). Fields of specialization of the respondents are shown in Table 2.

Table 2: Distribution of Respondents According to Different Fields of Specialization							
Field of Specialization	f	%					



Library Science	4	10
Professional/Marine Engineering	15	38
Math	4	10
Hospitality and Tourism	3	7
General Education	10	25
Curriculum and Assessment	4	10

Research Instrument

To determine the level of corporate social responsibility (CSR), the 5, 4, 3, 2, and 1 scales were used to determine the level of CSR among marine engineering faculty. For statistical analysis, the following descriptive levels and descriptions were employed:

<u>Scale</u>	Description
4.21 - 5.00	Very High
3.41 - 4.20	High
2.61 - 3.40	Average
1.80 - 2.60	Low
1.00 – 1.79	Very Low
sion	

Results and Discussion

Level of Respondents' Corporate Social Responsibility

The level of corporate social responsibility of the respondents as an entire group was "high" as indicated by their mean score of 4.04. When classified according to different categories such as employment classification, sex, highest educational attainment, number of years in the university, and age, the respondents' level of corporate social responsibility was also "high" as indicated by their respective mean scores reflected in Table 3.

Table 3: Level of Corporate Social Responsibility of the Participant
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Category	Mean	Description
Entire Group	4.04	High
Age	· · / /	
51 years old and above	4.03	High
50 years and below	4.07	High
Sex		
Male	4.09	High
Female	3.99	High
Employment Classification		
Teaching	4.15	High
Non-Teaching	3.82	High
Number of years in the University		
11 years and above	4.01	High
10 years and below	4.07	High
Highest Educational Attainment		
Bachelor's Degree	3.83	High
Master's Degree	4.14	High
Doctorate Degree	4.01	High

Legend: 4.21 - 5.00 Very High; 3.41 - 4.20 High; 2.61 - 3.40 Average; 1.80 - 2.60 Low; 1.00 – 1.79 Very Low



Most and Least Dominant CSRs (Corporate Social Responsibilities) of the Respondents

The respondents agreed that the most dominant corporate social responsibilities (CSRs) are the following: (1) produce graduates with good knowledge and high social awareness (M = 4.23, R = 1.0), (2) the university takes into consideration the interest of its students (M = 4.20, R = 2.0), (3) The skills, knowledge, and technology learned by the students inside the classrooms are transferred to the community (M = 4.18, R = 3.5) and university administers Corporate Social Responsibility (CSR) based good governance (M = 4.18, R = 3.5). However, the least dominant CSRs are the following: (1) the teachers voluntarily join the projects of Corporate Social Responsibility (CSR) (M = 3.83, R = 20.0), (2) corporate Social Responsibility (CSR) activities are done regularly (M = 3.85, R = 19.0), (3) alumni are tapped as key speakers to give information, new trends, and development in MET (Maritime Education & Training) and other business-related topics (M = 3.90, R = 17.5) and The graduates of JBLFMU-Molo are trained to solve the problems of the community (M = 3.90, R = 17.5). Data are shown in Table 4.

Items	Mean	Rank
The university administers Corporate Social Responsibility (CSR)	4.18	3.5
The university takes into consideration the interest of its students	4.20	2.0
The university looks into the welfare of its employees	4.05	11.0
The university encourages parents to participate in the activity of the school.	3.98	14.0
Alumni are tapped as key speakers to give information, new trends, and development in MET (Maritime Education & Training) & other business-related topics	3.90	17.0
The university considers the surrounding communities as partners in its mission and vision	4.15	5.5
It serves the needs of the people in the region, specifically in Region 6.	4.10	8.0
Produce graduates with good knowledge and high social awareness	4.23	1.0
It initiates activities for social awareness and responsibility	4.15	5.5
It conducts research for the development of new knowledge to be shared to the community.	4.13	7.0
The skills, knowledge, and technology learned by the students inside the classrooms are transferred to the community.	4.18	3.5
The academic courses of the university are linked to social needs of the community.	4.18	3.5
The academic courses of the university are linked to social needs of the community.	4.08	9.5
The graduates of JBLFMU-Molo are trained to solve the problems of the community.	3.90	17.5
JBLFMU-Molo as a university makes it clear to everybody to who they are responsible for.	3.93	15.5
The students of JBLFMU-Molo are prepared to work with different kinds of people in the world.	4.08	9.5
The teachers voluntarily join the projects on Corporate Social Responsibility (CSR)	3.83	20.0
Teachers are participating in activities leading that preserve and nurture religious, cultural heritage and the environment.	4.00	12.5
Corporate Social Responsibility (CSR) activities are done regularly.	3.85	19.0

Table 4: Most and least Dominant CSRs of the Respondents



Teachers are engaged personally in the different civic and social missions		
and service activities.	3.93	15.5
Teaching and no-teaching staff exercise the "green policy" for energy saving		
and environment protection.	4.00	12.5

t-test Differences in the CSR when the Respondents were categorized according to Classification, Sex, Number of Years in the University, and Age

Using the t-test to determine the significant differences on CSRs of the respondents, results revealed that the only group that has significant difference in the CSRs are those respondents who belonged to teaching and non-teaching with obtained t value of 2.81 where p < .05. Other categories such as sex, number of years in the university, and age have no significant differences as indicated by their obtained ts such as .835, .488, and .241. Data are shown in Table 5.

Table 5	5:	Differences	in the	Corr	orate	Social	Res	ponsibility	(CSR)	using	t-test
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Category	Mean	t-value	df	Sig.
Age				
50 years and below	4.03	.241	38	.811
52 years and above	4.07			
Sex				
Male	4.09	.835	38	.409
Female	3.99			
Employment Classification				
Teaching	4.15	2.81	38	.012
Non Teaching	3.82	1.1		
Number of Years in the University	1 1			
10 years and below	4.10	.488	38	.628
11 years and above	4.07			
n< 05	1			

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Differences in the CSR when the respondents were grouped according to Highest Educational Attainment (HEA)

Using the Analysis of Variance (ANOVA), result revealed that the level of CSR of the respondents does not have influence in the educational attainment, whether, the respondents have doctorate, master's degree, or bachelor, still the respondents exhibited the same level of CSR as indicated F (2, 37) = .31, p > .05. Data are shown in Table 6.

Table 6: Differen	ces in the Cornors	ate Social Respo	nsihility (CSR)	using $AN()VA$
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Highest Educational Attainment	Degree of Freedom	Sum of Square	Mean Square	F	Sig.
Between Group	2	7.42	.42	.31	.28
Within Group	37	11.36	1.59		
Total	39	18.78			

p < .05

Qualitative inputs, comments, remarks, and views from the Respondents

The researchers identified five (5) themes derived from the qualitative inputs, narrative descriptions, remarks, and views about the CSR at the maritime university (JBLFMU-Molo). These are the following:

1) "sustainability of the programs" in CSR, this means that the programs are not properly sustained as supported by the statements "it may be practiced sometimes and sometimes not," "the school must sustain what they have started, and not only for the cosmetic effect," and "not consistent in implementing rules and regulations of CSR," with 50% of the responses.

2) The second was "help and protect the environment" with 20% of the responses: "the CSR of JBLFMU-Molo can help our environment and this is the one way to recognize that the school is helping our environment."

3) The third was the "active involvement in CSR" with 15% of the responses: "activities must not only involve few or identified faculty members as much as possible "everybody" must take part"

4) Another comment is "have regular activities to benefit the society" with 10% of the responses: "Corporate Social Responsibility is a step to encourage teaching and non-teaching staff in JBLFMU-Molo to be able to make/ to become a responsible and social conscience organization/ individual to the social community," and "It has activities that have benefits to the society."

5) The last comment was "development of different stakeholders" supported by the statements below: "contributes to the development of its stakeholders," and "John B. Lacson commits to help economy by providing competitive and skilled seafarers."



Figure 2: Qualitative input from the respondents

All of the respondents agreed that Corporate Social Responsibility (CSR) are indicators towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university. Data are indicated in Table 7.

Table 7: Corporate Social Responsibility (CSR) as indicators towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university (JBLFMU-Molo)

Question	f	%
Is Corporate Social Responsibility (CSR) indicators towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university?		
Yes	40	100
No	0	0



Qualitative inputs included the respondents' views on the indicators of CSR in the attainment of excellence in maritime education. Figure 3 reflects the data.



Figure 3: Indicators of Corporate Social Responsibility (CSR) towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university

Implications of Corporate Social Responsibility to Organizations

The study of the importance of CSR has been growing recently. Many organizations note CSR to their sustainability and their competitive advantage. Researchers point to the fact that academic communities have shown that CSR orientation is the key to stimulating long-term stability, growth and sustainable performance in a dynamic and changing environment (Lou and Homburg, 2007; Gyves and O'Higgins, 2008; Prado-Lorenzo *et al.*, 2008).

This study claims that CSR is linked to higher academic performance as well as attracts academic interest. It can likewise serve as a contribution to the existing literature in ways that may prove its significance in diverse perspectives. Organizations have established that CSR may be an organizational device that may lead to a more effective corporate financial performance (Orlitzky *et al.*, 2003). Through this investigation, the existence and nature of CSR point to its significance in the academic institution.

Conclusions

Based on the findings of this study, the following conclusions were drawn:

1) The level of corporate social responsibility of the respondents was "high," which means that the faculty members and staff of JBLFMU-Molo have given high premium in serving their respective communities. They agreed that their responsibility and calling are not only teaching but also serving the less and underprivileged members of the society. Most of them have engaged in many civic and religious organizations where they can exercise their corporate social responsibility (CSR) in the community and to the country.

2) The respondents agreed that the most dominant corporate social responsibilities (CSRs) are the following: (a) produce graduates with good knowledge and high social awareness, (b) the university takes into consideration the interest of its students, (c) skills, knowledge, and technology learned by the students inside the classrooms are transferred to the community and university administers Corporate



Social Responsibility (CSR) based good governance. The results signify that the faculty members and staff still value the service of teaching the students about the applied knowledge and becoming sensitive to the needs of other people. They believed that the first priority of teaching in the university is the interest and welfare of the students. They instilled in the minds of their students that the knowledge and technology that they received in the school should be transferred to the community for the country's development and progress. Most of the faculty members and staff adhered to the value of "good governance" as essential tool for the educational progress and development.

3) The respondents expressed that in exercising the corporate social responsibility (CSR), educational attainment has nothing to influence. It means that whatever the level of educational attainment of the faculty members and staff, still they believed that exhibiting and engaging in CSR is a primary call and duty.

4) One of the major comments of the respondents of this study was based on "sustainability of the programs" of CSR. This denotes that although the university has established CSR programs, but the problem is the continuity of the program. This means that the programs in CSR are only for the compliance not to address the needs of the community and society. They suggested that the CSR programs should be creating impacts and imprints in the lives of the people in the community rather than for accreditation or status.

5) According to the faculty members and staff of JBLFMU-Molo, that one of the indicators of CSR towards the attainment of excellence in Maritime Education and Training (MET) as a maritime university is "touching the lives of other people" which supported by the statements such as "an excellent institution is measured on how many lives it touches and how effective is it in the community as a player in growth and development," "being a social responsible to the community/ society is a good foundation of a positive life," "CSR can promote excellence in Maritime Education and training as a maritime university. By doing this, it brings prestige to the name of the institution." This is because majority of the employees in JBLFMU-Molo believed that "giving and helping students to become successful would bring also positive effect to the community.

Recommendations

Based on the findings and conclusions of this study, the following recommendations were advanced:

1) The administration of JBLFMU-Molo should sustain the initiatives and drive of the faculty members and staff in exercising their CSR.

2) There should be more programs and activities shall be included in the operational plan of the university in order that the faculty members, staff, and students shall imbibe deeply the CSR of the maritime university (JBLFMU-Molo).

3) The religious, civic, and social engagements and affiliations of the faculty members and staff shall be considered in the faculty development so that more participation on CSR will be surfaced.

4) Documentation of effects and impacts of CSR on the community and society shall be conducted and recorded to show how the university had influenced the progress and development of certain place.

5) Parallel studies on CSR shall be encouraged and facilitated by the community extension office in order to attract more employees to be active in engaging with CSR programs.



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Metamorphosis of an Iron Butterfly: A Convertible Space

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ABSTRACT

In universities, in-campus accommodations such as dormitories and studio apartments have proliferated. With this, the researchers aimed to create an effective convertible space that meets the needs of school investors and other users through space saving interiors without sacrificing the aesthetic of the overall design. Recently, a number of condominium developments sprung up close to university belts. This study therefore proposed a convertible space with transformable furniture that can equip the essential comfort for students, employees, faculty and staff, guests and proposed users of convertible spaces situated along universities. Application of the contemporary interior design concept was utilized. This aimed to aesthetically exhibit space saving spaces and space convertible interiors through use of transformable furniture. The researchers employed descriptive research strategies to collect data from space users like contractors and allied professionals regarding their preferences. These were then applied and translated to the the different design strategies needed in the proposed convertible space. With careful analysis of the collected data and information, solutions were offered to the design problem. Interviews and virtual tours were also done to provide the data needed for the conduct of the study.

Keywords: Convertible Space, Condominium, Contemporary Interiors, Interior Design, Transformable Furniture.





Introduction

Space saving is the name of the game (Edelson *et al.*, 2017). Micro-apartments, space saving interiors, and convertible shape shifting furniture may be an invention of the future. It is true people are living in smaller spaces than ever before. Despite the tiny size of micro-apartments, people can still comfortably fit most furniture and belongings with creativity and an eye for interior design (Platinum properties, 2015).

Meanwhile, in the Philippines, students have found condo living feasible as this allows them to avoid long commutes so they can have more time for school work, social activities with friends, and the luxury of rest. Others prefer living near the school vicinity as this implies security and safety for them. This also promotes independence to some students. Convertible spaces, such as student condominiums in this study, feature a bedroom space capable of being incorporated into living space as required, with functional areas becoming usable space without compromising condominium access. Such 'convertible spaces' allow for a highly flexible, multi-positioning option for dining, bedroom and lounge areas that otherwise would be fixed in position. In turn, living area can increase by 70% at the owners' whim. Convertible furniture and spaces allow people to make the most of the condominium space. By day students can have a studio apartment and by night they can maximize the entertainment capacity by increasing one's living areas. By including a fold-down bed and moveable wall, added several meters to the condominium rooms and offer occupiers an enormous amount of flexibility. When the bed is hidden away and the wall moved across into the bedroom area, the result is a 70% increase in living area" (Hayton, 2014).

It is in this regard that the researchers proposed a convertible furniture and space saving interior of a condominium. Urban dwellers must face the reality that big rising cities like Iloilo city are becoming increasingly overcrowded which means that housing is in short supply. This is when housing becomes expensive and less space means less rent. Designing a space saving and adaptable furniture and décor could make condominiums more compatible with the way people increasingly live now and help the city of Iloilo absorb more people in the future. The challenges include how to do so affordably, aesthetically, comfortably and with enough privacy to make these spaces homes as well as housing effective and meet the client's needs in a theme which is applicable in everyday ever changing world.

Objectives of the Study

Specifically, this study aimed to do the following:

To create a space saving interior design in a convertible space, such as the two-unit bedroom in a condominium.

To design a convertible furniture layout in the convertible space. To effectively apply the Seven Principles of Universal Design.

Theoretical Framework

The proposed study intended to explore the established relationships between the physical environment and needs of tenants, guest, employee lifestyle and productivity by integrating space saving design strategies, and the seven principles of universal design.

Developed in 1997 by a working group of architects, product designers, engineers and environmental design researchers, led by the late Ronald Mace in the University. The purpose of the Principles is to guide the design of environments, products and communications. According to the Center for Universal Design in NCSU, the Principles "may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments."



Rosetti (2006) in, The Seven Principles of Universal Design, discusses universal design as a framework for the design of living and working spaces and products benefiting the widest possible range of people in the widest range of situations without special or separate design. The seven principles are as follows:

Equitable Use; Flexibility in Use; Simple and Intuitive Use; Perceptible Information;

Tolerance for Error; Low Physical Effort; and Size and Space for Approach and Use.

Conceptual Framework

Figure 1 shows the schematic flow of the study. Convertible space and furniture design were created with the seven principles of design focusing mainly on flexibility, adaptability, and convertibility. This encompasses the process of designing for the prospect clients in relation to their physical and mental well-being and lifestyle as well as their identified preferences in terms of facilities and design.



Scope and Limitation

This study concentrated on the interior design of a proposed condominium in Iloilo City, specifically for prospect like the university students. This was guided by strategies centered on the space saving and transforming space interiors including convertible furniture related to the needs of the prospect clients. This included perspectives of two bedroom units.

Convertible and Space Saving Interiors

Most people need it and want a lot of it when it comes to one's living arrangements. But as cities become more urbanized and more crowded, living spaces become smaller. Making the most out of a small apartment has become a real and constant challenge. Many designers have mastered the art of transforming interiors that turn tiny living spaces into space transforming interiors that surely people would want to live in. Take for instance, an apartment where people can reconfigure in different ways by simply activating and deactivating individual parts of its infrastructure (Friedlander *et al.*, 2013). *Flexibility in Design Process*

The design accommodates a wide range of individual preferences and abilities. It is important to note that change is an indispensable element for flexibility. "Flexibility is not an innate architectural quality, but the ability of the built environment to accommodate change between a defined start-state and end-state."

Adaptability. The capacity of the built environment to support multiple functions without altering the architecture is called adaptability. Different processes are accommodated through movable partitions, repositionable furniture, and other aspects of the environment that are able to change to accommodate



the user or occupant. The changes do not result in a permanent change to the space, and therefore the space can flex between the start-state and end-state with ease. The function changes, but the container does not.

Transformability. Through transformability, the interior or exterior space can be altered in response to external or internal stimuli without construction. Although this type seems to be the most common in general architecture. Transformability is both permanent and temporary. The ability to go back and forth between a defined start-state and end-state is permanent. This type of flexibility does not require construction, although some user interaction might be involved. Within transformability, two subsets exist: moveable and responsive. Movable structures are capable of being repositioned within the environment. The structure or object is not changed, but may be taken to entirely new surroundings. The resulting change is not permanent, but may require a greater effort or cost than other types of flexibility. Also a subset of transformability, responsiveness addresses a facility's ability to react to an outside condition, such as a weather emergency or viral outbreak. The changes often are temporary and perhaps more labor-intensive than adaptable solutions, but allow for a greater scope of change.

Convertibility. This last flexibility type addresses a much broader scope than any other type and convertibility accommodates changing functions through a certain amount of construction. It reduces construction cost and time by anticipating the potential future needs. Changes to the built environment that occur under convertibility responded to larger time and spatial scales. The resulting change is, more often than not, permanent.

Designing for Flexibility. Incorporating each type of flexibility into a building's design should begin in the early planning phase of a project. These early decisions result in reduced cost as well as increased ease of implementation and potential for greater impact. Important resources during this process include initial feasibility studies, future projections, and area trends, as well as any long-term growth plans the institution might already have in place. Regardless of how flexibility is brought forth as a design consideration, establishing specific flexibility goals is paramount to a project's visioning process. Solidifying objectives into guiding principles assures that all team members are on the same page and

Research Design

The research design is framed according to the seven principle of universal design focusing on the framework, *Metamorphosis of an iron butterfly*. This constituted both qualitative and quantitative methods in gathering the data. The researchers used descriptive research methodology to gain valuable data and information. This study involves collection of data on the proposed convertible space which is a condominium. Data collection was mostly done through reviewing relevant literature from books, encyclopedias, (building/design) material catalogues, related theses, online journals and resources. By purpose, this study is a research and development undertaking wherein the objective is to develop effective convertible space saving interiors for usage by a society that pursues progress through constructing of diverse spaces. Upcycled and repurposed materials/products are applied in the interiors of the condominium, furniture, interior design materials for public and private use.

Locale of the Study

The proposed condominium located the university belts, specifically along the main street of Iloilo City. It is accessible to major roads, commercial establishments and educational institutions around the city.

Research Instrument

The researchers used interview using a guided questionnaire in gathering the data for the research. Structured questionnaires were used by the researcher in gathering the data needed, wherein a given



pool of choices are being supplied by the respondents and there are some specified blank spaces needed for the respondents' opinion to generate information regarding their preferences on the convertible space in a condominium as residential units. It contains questions regarding ambience preferences, facilities, amenities, interior spaces, wall designs, and comfort of the users.

Respondents of the Study

The respondents of the study were the urban dwellers in Iloilo City. Thirty (30) respondents were selected through convenience sampling, a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher. They were made to answer the questions with regard to their preferences in relation to the proposed project.

Results

A guided interview using questionnaires was conducted to determine the urban dwellers preferences in terms of color schemes, design themes, ambience, types of space saving approach and design materials and suggestions of the proposed condominium. Using purposive or deliberate sampling method, the researcher was able to gather the data from a total of 30 respondents.

Results of the question pertaining to the preferred color scheme in the interiors of the condominium units and common areas are shown in Table 1. Based on the data, *Warm earth tones* emerged as the most preferred design style with 16 or 53 percent of the respondents' preferences. This was then followed by *Neutral colors in cool tones* with 12 or 40 percent. And the least preferred design style is *Neutral colors with blue green as an accent* with 2 or 7 percent of the total responses.

COLOR SCHEME	f	%
Neutral colors in cool tones	12	40
Warm earth tones	16	53
Neutral colors with Warm earth tones blue green as an accent	2	7
Others	0	0.0
Total	30	100

 Table 1:
 Preferred color scheme for the proposed convertible space

Results of the question pertaining to the preferred design to be incorporated in the interiors of the condominium units and common areas are shown in Table 2. Based on the data, *Forest inspired tropical type of design* emerged as the most preferred design style with 22 or 73 percent of the respondents' responses. This was then followed by Coastal beach kind of tropical with 18 or 27 percent.

Table 2:	Preferred type of tropical design style to be incorporated with contemporary concept in the
	interiors of the proposed convertible space

Type of Design Approach	f	%
Coastal beach kind	22	73
Forest style	8	27
Others	0	0
Total	30	100



Results of the question pertaining to the preferred type of space saving kind of approach in the space and furniture layouts in the proposed condominium are shown in Table 3. Convertible furniture emerged as the most preferred design style with 21 or 70 percent of the respondents' responses. This was then followed by the micro-apartment kind of approach with 9 or 30 percent.

 Table 3: Preferred type of space saving approach in the space and furniture layouts in the proposed convertible space

Type of Space Saving Approach	f	%
Micro-space kind of approach	9	30
More on convertible furniture	21	70
Others	0	0
Total	30	100

Design Translation

This section presents the design philosophy and concept of the researchers in planning the design of the proposed convertible space. Related graphics such as the Mood Board, Bubble Diagram, Adjacency Matrix, and Working Drawings' show the design process details. Material and Color Board, and Itemized Furniture are also included. However, these are not shown in this paper. Only the convertible bedrooms and two transformable furniture are included in this study.

Adjacency Matrices

Based on the analysis of the bubble diagram, an Adjacency Matrix is done. This shows desirable adjacency between spaces. The layout of areas is based on these programming analysis graphics. The matrix chart shows the accessibility of the various areas in the building plan. The Adjacency Matrices however are found in the Appendices because of the limited number of pages required in this paper.

Material and Color Specifications specify the color scheme and materials applied to the interiors of the proposed convertible space. The selected number of color schemes, furniture and facilities used are in accordance to the results of the survey regarding the users' preferences. The Materials and Color Schemes are also found in the Appendices.

Design Strategy

To facilitate discussion of the design translation and perspectives of the bedroom units, the design specifications were made assuming that retrofitting has been done to the whole building structure. Selected materials from the preceding tables were applied to the condominium design. Only the perspectives and the sample furniture were included.

Perspectives

It is the system of realistic pictorial drawing representing objects and spaces in relative distance or depth. Distant objects appear smaller than nearer objects, and horizontal lines move into distance, converging toward vanishing point on the horizon (Pile, 2007).

This includes only the bedroom units. It follows the format of 3D rendering. Only the Bedroom Unit can be converted into multiple spaces. The figures that follow show the perspectives.





Figure 2: Perspective of a Two-Bedroom Unit (View 1)



Figure 3: Perspective of a Two-Bedroom Unit (View 2)

The bedroom unit (Figure 2) was creatively designed with convertible furniture pieces to create a space saving interior spaces with movable walls to create multi spaces. Murphy bed was proposed. This can be turned into a sofa, the coffee table can be turned into a dining table, stackable chairs can be converted into console, foldable stools which when not being used can serve as a wall décor. On the other hand, the 2nd bedroom area (Figure 3) is designed like in a compact way as micro flats would appear to be, using of sofa/loft bed. Transformable kitchen counter with a cover could be turned into a nook. Movable partitions are also present where one can easily pull and transform a space according to one's privacy needs.

The use of vibrant paint on wall creates a fun attitude together with the wood and gray walls. The plants and other accessories complement the chosen color schemes for the furniture that create a refreshing beach like vibe.





Figure 4: Studio Unit View 1



Figure 5: Studio Unit View 2



Figure 5: Studio Unit Bedroom View 3

The studio unit has basically the same wall and flooring treatments as the 2 bedroom units but just as more compact compared to the other units. When the furniture is not being used, the room becomes larger. Chairs could be stacked and could be used as console or side tables, dining table as a coffee table, the Murphy bed/sofa is also present. A locker cabinet which when opened has a foldable desk on one of its doors and can be used as a working space. While shelves, drop light, and the use of indoor plants and succulent plant serve as the elements in this area.

Transformable Space Saving Furniture

In this study, there are few transformable space saving furniture that were considered. Space saving beds, tables, and chairs were included. Such furniture has functional properties compared to other furniture. The use of space saving furniture spaces not only make them space saving but are also considered aesthetically pleasing and are works of art. Transformable space saving furniture is a revolution in furniture design. Since transformable space saving furniture is new, possesses much room for innovation in both its design and on the future market (Astonkar & Kherde, 2015).



Figure 6: Transformable furniture – both a desk and a bed



Transformable furniture. This furniture can be a space saving furniture that may qualify both as desk and bed. This can serve its purpose depending on the use preferred by the user. The bed size depends on the customer's request. This shows not only a desk and bed into one but also includes a shelf where the user can place his/er books. There are other options available for beds. But only one is included in this paper.



Figure 7: Transformable table Source: Wang (2013) www.pdfs.semanticscholar.org

Transformable Table. The table can be transformed into different sizes again depending on the choice of the user. In Figure 7 below, the table can be a lamp table and a dining table at the same time. This table has five extension stages and can be extended up to 9.5 feet long. The main impact of this design is its space saving ability when it is not in use, and its provision of a large entertaining space when the owner needs a dining room table. Figure 7 shows the fully extended version of a transformable space saving table. This is very good for those who prefer living in small spaces. This can also save space for those who do not have visitors often.

Implications of the Study

This study presents the innovative idea of transformable space saving ideas in the context of living in condominiums situated near universities. School leaders may re-channel their school resources to include housing for students to help them save time and energy in their travels from home to school. With this, they divert some of their savings to condominium for students. Along with condo living, they may consider designing for practical purposes. The use movable wall structures, transformable beds, sofas, study tables, etc. are convenient strategies to assure comfort and accessibility among users. This can also be another emerging idea for school leaders to further consider investing on space saving interiors to provide practical housing for those who study and may choose to live along university areas. This study also contributes to the idea that urbanization is starting to pave its way in developing countries like the Philippines. In Iloilo City, more and more students are moving to the city to study and more universities cannot provide spaces that will cater to their needs.

This is a good opportunity for the development of transformable space saving furniture in cities where universities are found. Moreover, in depending on the function of transformable space saving furniture, the target market should be places having a high population density. With this, a city's population density will affect its average living area, and the smaller the average living area, the better will be its market for transformable space saving interiors also.

Conclusion

By purpose, this study is a research and development undertaking that may be considered by school leaders and investors alike. Its objective is to develop effective and sustainable interiors for usage by a society that pursues progress through constructing of diverse, multipurpose and convertible spaces,



Source: Wang (2013) www.pdfs.semanticscholar.org

while creating a convertible space saving interiors together with the seven principle of universal design which is efficient in today's lifestyle.

Recommendations

Based on the results and conclusion of this study, the following were recommended:

A more evident application of indoor plants and lessened synthetic rubberized plants is encouraged to promote health benefits.

To provide more effective partitions in public areas to be able to convert spaces effectively according to the number of the users.

Future researchers may explore more recent space saving design findings that can encourage public consumption and utilizing spaces effectively since the yearly rise of expenses in renting and buying of residential properties continue to proliferate.

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Demographics as a Variable in Assessing the Quality of Catholic Education of Augustinian Recollect Schools in the Philippines

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ABSTRACT

This descriptive-correlational study aims to describe the level of quality of Catholic education of five Augustinian Recollect educational institutions in the Philippines as assessed by school personnel according to the framework of the Philippine Catholic School Standards in terms of Catholic identity and mission, leadership and governance, learner development, learning environment, and operational vitality. Specifically, it aims to determine whether a significant relationship exists between the demographic profile of the school personnel and their assessment. The data were generated using the Philippine Catholic School Standards Survey Questionnaire and were analyzed using percentage, weighted mean, chi-square test of independence, and Spearman rho. The findings reveal that the level of quality of Catholic education in Augustinian Recollect schools exceeds the benchmark with operational vitality as the lowest domain. No significant relationship was found between the school of origin, designation, and sex of school personnel and their assessment on the quality of Catholic educatio.

Keywords: Augustinian Recollect Schools, Catholic Education, Descriptive-Correlational, Negros, Philippines





Introduction

Catholic schools are privileged places of the integral formation where all human faculties are developed along with preparation for professional life, the formation of ethical and social awareness, and awareness of the transcendental and religious education (Congregation for Catholic Education [henceforth CCE], 1977). Hence, the Catholic education as an ecclesial educational enterprise seeks to form students not only on the internationally accepted standards and qualifications for global competence and employment; but also transform their minds and hearts with the message of the Gospel to become active catalysts of transformation in the family and society (Tabora, 2014).

For more than 400 years of Catholic education in the Philippines, Catholic schools have provided the quality education that this country needs, offering different levels of education and types of formation. They have produced professionals who are top leaders, heroes, and achievers in various fields of endeavors (Palma, 2012; Baltazar, 2003). In recognition of these schools' consistent commitment to excellence in education, the Philippine Commission on Higher Education (CHED) has distinctively recognized many Catholic schools as autonomous and deregulated academic institutions in the country. In fact, four Catholic universities (Ateneo de Manila University, Dela Salle University, University of Santo Tomas, and University of San Carlos) have made it to the latest top 350 universities in the QS University Ranking 2018 in Asia along with the University of the Philippines in terms of their adherence and accomplishments to quality education. In response to the challenges of the 21st-century Catholic education in the Philippines, CEAP released the Philippine Catholic School Standards (PCSS) in 2016 to provide a roadmap for the future of the Philippine Catholic schools. The document lists and describes the established standards, benchmarks, and rubrics for Catholic schools to assess and discern their practices and performance relative to their identity and mission as Catholic educational institutions towards "authentic and dynamic process of continuous improvement and renewal" (CEAP, 2016).

Speaking of Catholic educational institutions in the Philippines, the Order of Augustinian Recollects [henceforth OAR] owns and administers ten educational institutions which cater to the tertiary and basic education needs of Filipinos in both urban and rural places as part of their teaching apostolate. In the Negros Island, the Augustinian Recollects operate five schools, namely: University of Negros Occidental–Recoletos (UNO-R) in Bacolod City, Colegio de San Nicolas de Tolentino – Recoletos (CSNT-R) in Talisay City, Colegio de Santo Tomas–Recoletos (CST-R) in San Carlos City, San Pedro Academy (SPA) in Valencia, and San Pedro Academy-Recoletos (SPA-R) in Caidiocan, Negros Oriental (REAP, 2010). Like any Catholic schools, these OAR schools offer a Recollect brand of Catholic education which is whole person education inspired by Augustinian pedagogy and Recollect spirituality (Almayo, 2017; Educational Plan of OAR, 2015).

Recent studies on Augustinian Recollect education in the Philippines delved more on graduate attributes of a Augustinian Recollect school (Madrigal, 2017), St. Augustine's "caritas et scientia" (love and knowledge) as pillars of Recollect education (Besana, 2017), and brand experience of Augustinian Recollect schools (Almayo, 2017). So far, there has never been any attempt to revisit and re-examine the Catholic identity and mission of Augustinian Recollect education in the Philippines as well as to determine how Catholic are Augustinian Recollect schools in the Philippines today. Likewise, this paper takes up the recommendation made by Madrigal and Oracion (2018) to re-assess the quality of Catholic education of Catholic school in the light of the Philippine Catholic School Standards for a comprehensive assessment of its Catholicity.

Statement of the Problem

The study primarily intends to investigate the level of quality of Catholic education of five Augustinian Recollect educational institutions in the Philippines as assessed by school personnel according to the framework of the Philippine Catholic School Standards in terms of Catholic identity and mission, leadership and governance, learner development, learning environment, and operational vitality.

Specifically, it aimed to answer the following research questions:



Is there a significant relationship between the age of personnel and their assessment on the quality of Catholic education?

Is there a significant relationship between the sex of personnel and their assessment on the quality of Catholic education?

Is there a significant relationship between the school of origin of personnel and their assessment on the quality of Catholic education?

Is there a significant relationship between the designation of personnel and their assessment on the quality of Catholic education?

Is there a significant relationship between the length of service of personnel and their assessment on the quality of Catholic education?

Hypotheses

The primary hypothesis of this proposed study was that no significant relationship exists between the demographics of school personnel and their assessment of the level of quality of Catholic education offered by Augustinian Recollect educational institutions in the Philippines. More specifically, the following hypotheses were tested:

There is no significant relationship between the age of personnel and their assessment on the quality of Catholic education.

There is no significant relationship between the sex of personnel and their assessment on the quality of Catholic education.

There is no significant relationship between the school of origin of personnel and their assessment on the quality of Catholic education.

There is no significant relationship between the designation of personnel and their assessment on the quality of Catholic education.

There is no significant relationship between the the length of service of personnel and their assessment on the quality of Catholic education.

Framework of the Study

The study is anchored on the Philippine Catholic School Standards which offers the framework for assessing the quality of Catholic education of five Recollect schools in the Negros. Its primary intent is to raise awareness on school effectiveness "through the establishment of standards, benchmarks, and rubrics that identify and distinguish the core characteristics of excellent and faith-based Catholic school" (CEAP, 2016).

The Catholic Standards outline the eight defining characteristics, five domains, 15 standards, and 62 benchmarks for effective elementary and secondary Catholic schools. The defining characteristics were articulated from the relevant Church documents and teachings on education. They describe the essential qualities or attributes that a Catholic school must possess. Drawing principles from the defining characteristics, the domains identify the important aspects of school operation: identity and mission, leadership and governance, learner development, learning environment, and operational vitality. The *Catholic identity and mission* refer to the core reference of the educational apostolate of a Catholic school which is anchored on the person of Jesus Christ and the saving mission of the Catholic Church and articulated in its philosophy, vision and mission statements and core values. Meanwhile, *leadership and governance* pertain to the governing structure of a Catholic school which provides "authority, strategic direction, effective oversight, and regulation of school operations united with the Church and in the spirit of servant leadership and Christian witnessing." On the other hand, the *learner development* signifies the primary goal of Catholic education which is the integral formation of the human person with emphasis on the "intellectual development and Christian growth of learners" for them to become



responsible members of the society and witnesses of their faith. Also, the *learning environment* concerns with the faith-filled physical and cultural setting which fosters the integral formation of members of a Catholic school through its programs, services, and facilities that enrich Catholic identity and accomplish academic and evangelical goals. Finally, the *operational vitality* pertains to what makes a Catholic school sustainable in relation to sound management, justice, and compassion towards its personnel, transparent and accountable financial management, ecological sensitivity, and culture of quality for institutional advancement (CEAP, 2016).

Moreover, each of these domains has a set of standards, benchmarks, and rubrics. The standards describe the "expectations of excellence and effectiveness" evidenced by the values, policies, programs, structures, and processes of a Catholic school. Meanwhile, the benchmarks describe what the school must do to accomplish the standards. They constitute the "concrete, observable, and measurable descriptors of excellence and effectiveness in Catholic schools." Finally, the rubrics serve as "assessment tools" that will indicate the level of attainment of the benchmarks (CEAP, 2016; Ozar, 2013). The use of PCSS framework of assessment will provide a common pathway for Catholic schools in the Philippines to realize their identity and mission as evangelical partners of the Church. Likewise, Catholic schools can explore and propose new ways to become more responsive and relevant to the needs of 21st-century learners.

Furthermore, framed in the context of the PCSS which challenges Catholic schools to perform vis-à-vis with their identity and mission excellently, the study is also linked with the Total Quality Management (TQM). As a systematic approach to organizational performance improvement, it can facilitate and achieve quality in schools regarding educational management, processes, and results. Critical to TQM is teamwork of all members of the organization to effect organizational change and development (Deeming, 2000 cited in Lunenburg, 2010). Applied to school management, TQM practices can have a significant impact on school leadership and improvement (Llantos & Pamatmat, 2016) and educational efficiency (Vlašić, Vale & Puhar, 2010). As a framework for transforming schools and achieving quality in education, effective school TQM system can help Catholic schools accomplish the goals of education by upgrading the quality of school management and delivery of educational services (Lunenburg, 2010).

Methodology

This study utilized descriptive-correlational research design. The design was used to provide relevant information about the behavior, attitudes, opinions or other characteristics of individuals or groups of people. The purpose was to describe and interpret the existing conditions, trends, and relationships of a phenomenon as they naturally occur. More specifically, the descriptive-correlational was used to measure the extent of the relationship between demographic profile of the respondents and their assessment of the quality of Catholic education using the appropriate statistical data (Leedy & Ormrod, 2005; Stangor, 2011; Sarantakos, 2013; Creswell & Creswell, 2017).

The respondents of this study were the total population of 198 full-time personnel—11 administrators, 162 teachers, and 25 non-teaching staff of the Basic Education Department of five aforementioned Recoletos schools in Negros Island. These schools include: the University of Negros Occidental-Recoletos (UNO-R), Bacolod City; Colegio de San Nicolas de Tolentino-Recoletos (CSNT-R), Talisay City; and Colegio de Santo Tomas-Recoletos (CST-R), San Carlos City in Negros Occidental Province; San Pedro Academy (SPA), Valencia; and San Pedro Academy-Recoletos (SPA-R), Caidiocan in Negros Oriental. Their personal encounters and experiences as personnel of Recollect schools for a particular period of time were considered important variables in assessing the quality of Catholic education in their respective schools. Hence, they were chosen as respondents of the study.

Distribution of Respondents	n	%
School of Origin		,.
SPA Valencia	22	11.1
SPA-R	11	5.6
CSNTR	41	20.7



CSTR	38	19.2
UNO-R	86	43.4
Designation		
Administrator	11	5.6
Faculty	162	81.8
Non-Teaching Staff	25	12.6
Sex		
Male	53	26.8
Female	145	73.2
Age		
22 years old and below	19	9.6
23 to 41 years old	142	71.7
42 to 53 years old	26	13.1
54 years old and up	11	5.6
Length of Service		
0-5 years	141	71.2
6-10 years	23	11.6
11-15 years	12	6.1
16-20 years	22	11.1
Total	198	100.0

A standardized instrument on Philippine Catholic School Standards developed by CEAP was used to gather the data. The permission of PCSS Coordinating Council was obtained for the use of the said instrument. The questionnaire was composed of two parts. Part 1 contained the demographic profile of the respondent, while Part 2 was the questionnaire proper, consisting of a 62-item Likert type benchmarks for assessing the quality of Catholic Education spread in the five (5) domains of the Philippine Catholic School Standards: catholic identity and mission, leadership and governance, learner development, learning environment, and operational vitality. Each domain has a set of standards, benchmarks, and rubrics. A total of 15 standards were distributed to 5 domains. Drawn from the defining characteristics of a Catholic school, standards serve as "expectations of excellence and effectiveness that give a clear description of where the Catholic school should be headed...They describe desired values, policies, programs, and processes that should be present in Catholic schools" (CEAP, 2016 p. 6). The following rating scale was used to qualify the responses of the respondents: 4-exceeds benchmark, 3-fully meets benchmark, 2-partially meets benchmark and 1-initially benchmark. Documentary evidence was also collected to validate the assessment of the respondents on the quality of Catholic education.

Descriptive statistics was used to analyze, present and interpret the data using frequency, percentage and mean while correlational statistics, which included Spearman rho and chi-square, was employed to find significant relationships between the demographic profile of the school personnel and their selfassessment of their experiences with the schools.

Results and Discussion

Level of quality of Catholic education in Recollect schools

As shown in Table 1, the overall assessment of the level of quality of Catholic education in Augustinian Recollect schools as rated by school personnel was "exceeds benchmark" (M=3.28, SD=0.46) in the light of the Philippine Catholic School Standards. The result indicates that Augustinian Recollect schools possess "the core characteristics of excellent and faith-based Catholic schools" (CEAP, 2016) as demonstrated in the excellence and effectiveness in the domains of quality Catholic education. Among the five domains, learning environment ranked first (M=3.32, SD=0.47) and followed by leadership and governance (M=3.31, SD 0.49), Catholic identity, and (M=3.18, SD =0.57) as the last. In terms of particular Augustinian Recollect school, SPA-R (M=3.23, SD 0.43) and UNO-R (M=3.19, SD 0.41) obtained a "fully meet benchmark" ratings, while SPA (M=3.46, SD 0.44), CSNT-R (M=3.29,



SD 0.53), and CST-R (M=3.38, SD 0.45) got "exceed benchmark" ratings. In addition, the various activities conducted by school personnel which was supported by available documentary evidence confirmed the exceptional assessment of the level of quality Catholic education in Augustinian Recollect schools.

Table 1. Lev	Table 1. Level of Quanty of Califord Education Offered by Recoretos Benoois in Regios																	
Recoletos	Catholic Identity			Leadership and			Learner			Learning			Operational			Quality of Catholic		
	and Mission			Governance		Development		Environment		Vitality			Education					
SCHOOL	м	SD	Int	м	SD	Int	м	SD	Int	м	SD	Int	м	SD	Int	м	SD	Int
SPA Valencia	3.50	0.37	EB	3.48	0.49	EB	3.44	0.46	EB	3.47	0.51	EB	3.35	0.57	EB	3.46	0.44	EB
SPA-R	3.28	0.52	EB	3.31	0.47	EB	3.12	0.45	FM	3.24	0.48	FM	3.21	0.43	FM	3.23	0.43	FM
CSNTR	3.27	0.69	EB	3.40	0.52	EB	3.16	0.63	FM	3.34	0.53	EB	3.34	0.58	EB	3.29	0.53	EB
CSTR	3.38	0.46	EB	3.48	0.42	EB	3.34	0.55	EB	3.37	0.49	EB	3.32	0.58	EB	3.38	0.45	EB
UNO-R	3.19	0.44	FM	3.16	0.46	FM	3.27	0.46	EB	3.26	0.42	EB	2.99	0.53	FM	3.19	0.41	FM
Total	3 29	0.51	FB	3.31	0 49	FB	3 27	0.52	FB	3 32	0.47	FB	3 18	0.57	FM	3 28	0.46	FB

Table 1. Level of Quality of Catholic Education Offered by Recoletos Schools in Negros

Note: EB=Exceeds Benchmark, FMB=Fully Meets Benchmark, PMB=Partially Meets Benchmark, IMB=Initially Meets Benchmark

The findings generally indicate that Augustinian Recollect schools have accomplished and surpassed the quality standards for excellent Catholic schools in the light of the Philippine Catholic School Standards (CEAP, 2016). Meaning to say, Augustinian Recollect schools possess and demonstrate "the core characteristics of excellent and faith-based Catholic schools" (CEAP, 2016)—grounded in the person and mission of Jesus Christ and shown commitment to evangelical and academic excellence for the integral human formation and service for the Church and society. Possessing these distinctive characteristics, Augustinian Recollect schools demonstrate excellence and effectiveness in the domains of quality Catholic education: identity and mission, leadership and governance, learner development, learning environment, and operational vitality.

With the learning environment as the highest ranked domain, the findings further exhibit the exceptional commitment of Augustinian Recollect schools in Negros to create and sustain an educational community permeated by Christian school climate (CEE, 1988). They demonstrated a learning community which is conducive to the human and spiritual development and lifelong learning; where stakeholders collaborate for the total learner development and where respect and appreciation of other people's diverse culture and perspectives are cultivated among learners (CEAP, 2016). According to Convey (2012), Catholic culture is the most important aspect of a Catholic school. What makes a school truly Catholic is the centrality of the Christian faith which is seen and felt in the various components of educational climate—persons, facilities, spaces, time, rituals, customs, traditions, values, relationship, academic and non-academic activities. Administrators and teachers have a significant role to play in establishing and sustaining this Christian Catholic school climate (CEE, 1988; CEAP, 2016).

In terms of Catholic identity and mission, Augustinian Recollect schools also showed strong grounding regarding Catholic foundation and culture. The domain inspires and directs all policies, programs, and initiatives of the Augustinian Recollect schools as Catholic educational centers. The rating of "exceeds benchmark" implies that Recollect schools are firmly rooted on a solid Catholic foundation and demonstrate a strong commitment to the integral human formation and evangelical mission as Catholic schools (CEAP, 2016).

Concerning leadership and governance, Augustinian Recollect schools demonstrated an exceptional roster of school personnel performing in various capacities. With committed and qualified school administrators, the findings signify that Recollect schools can deliver and achieve what is expected of them as Catholic learning institutions as embodied in its philosophy, vision, and mission with a Augustinian Recollect brand of education. Studies affirmed that good leadership and governance empower and inspire a member of the academic community to realize its vision-mission, goals, and objectives (Spesia, 2016; Morten & Lawler, 2016; Knowles, 2014; Cardarelli, 2014). In this aspect, school administrators with the collaboration of teachers are critical to establish and promote an environment conducive to promoting the Catholic identity and development of faith of Catholic schools (Spesia, 2016; Cardarelli, 2014; Cook & Simonds, 201; CCE, 1988).

In terms of learner development, the findings signify that Augustinian Recollect schools are committed to inclusive education that caters to specific needs of students so that they can enhance their knowledge, skills, and attitude for living and growing as human persons in the community. Despite the turnover of



teachers, Augustinian Recollect schools maintain a good number of "Christ-centered, competent, and professionally qualified" school personnel (CEAP, 2016) who collaborate in the educational apostolate of the school. The training of the teaching and non-teaching personnel is important so that they can better understand, embrace, commit to and witness the evangelical identity of Catholic schools (CCE, 2014). Likewise, they may also competently respond to the needs of the 21st century-learners, preparing learners to be productive and responsible citizens of society and committed witnesses of their Christian faith in the world (CEAP, 2016).

On the other hand, the "fully meets benchmark" rating on operational vitality signifies a continuous improvement in the operational management of Augustinian Recollect schools. Operational vitality is a key to accomplish and sustain Augustinian Recollect schools' evangelical and educational mission (Hobbie, Convey & Schuttloffel, 2013). Effective and efficient strategic planning and implementation to manage the human and material resources and educational linkages and networks are important areas that Augustinian Recollect schools need to improve to ensure the sustainability of their operation and institutional advancement (CEAP, 2016). Likewise, the aspect of effective communication of corporate identity of Augustinian Recollect schools needs to be enhanced so that these schools can better inform the current and potential clients and partners of their identity, mission, programs, activities, and directions for future collaboration (CEAP, 2016).

Undoubtedly, Augustinian Recollect schools in Negros can vouch for the quality of Catholic education they offer as certified by the government and private accrediting agencies. However, like any private Catholic schools, access to Catholic education in Augustinian Recollect schools is still a feat due to a relatively high tuition fee (see also Cornelio, 2018) compared to public schools offering free tuition fees for basic education. The financial consideration poses a great challenge to the fiscal management of Augustinian Recollect schools with the decline of enrollment. As private schools, Augustinian Recollect schools depend largely on tuition for their revenues. Consequently, if enrollment drops it will have a ripple effect on the effective delivery of services and retention of excellent teachers (Palma, 2012; Baltazar, 2003). Given the situation, Augustinian Recollect schools need to establish an effective marketing strategy and forge strong and working alumni relations, linkages, and partnership with individuals, government agencies, organizations, and industry to lobby for more financial support for its various operational concerns and activities of Augustinian Recollect schools.

Viewed from the total quality management perspectives, Augustinian Recollect schools as academic institutions demonstrated a high level of performance which is indicative of the presence of good leadership, improvement, and active collaboration of the stakeholders in the pursuit of quality Catholic education (Deeming, 2000; Lunenburg, 2010; Llantos & Pamatmat; 2016). Likewise, the results strongly suggest that there is an effective synergy of systems, resources, processes, and organizational and personal values in Augustinian Recollect schools for the realization of their educational apostolate. Notwithstanding the areas for continuous improvement, Augustinian Recollect schools effectively succeeded and efficiently performed as Catholic educational institutions in the light of the PCSS framework. It is educational efficiency according to Vlašić, Vale, and Puhar (2010).

Relatedly, the findings of the study differed from the similar study conducted by Bual and Madrigal (2019) which rated the level of quality of Catholic education of a Catholic school in Antique as "fully met benchmark" with learning environment as the highest domain and leadership and governance as the lowest domain in terms of assessment. Likewise, the findings contradicted the result of the study made by Montalvo (2018) on the level of quality of Catholic culture in an Augustinian Recollect school as "fully met benchmark" in all the domains of PCSS.

Relationship between personnel demogaphics and Catholic education quality assessment

Meanwhile, the Spearman rho test results in Tables 2 and 3 show a significant inverse relationship between age $[\rho(196)=-0.143, p=0.045]$ and length of service $[\rho(196)=-0.194, p=0.006]$ of school personnel and their Catholic education quality assessment. However, no significant relationship was found between school of origin and designation and their quality assessment as shown in Tables 4 and 5. On the other hand, age $[\rho(196)=-0.150, p=0.035]$ and length of service $[\rho(196)=-0.223, p=0.002]$


showed a significantly inverse relation to how school personnel assessed the aspect of leadership and governance in Recollect schools. The results suggest that the older and the longer they are employed, the more they become realistically critical of the school management, policies and practices of the Augustinian Recollect schools. This may explain why they tend to give lower ratings as compared to the younger and newer personnel of the school who are perhaps more lenient or tolerant in making their assessments.

In addition, the findings show how age [$\rho(196)$ =-0.158, p=0.026], length of service [$\rho(196)$ =-0.244, p=0.001], school of origin [$\chi^2(12)$ =21.954, p=0.038] and designation [$\chi^2(6)$ =14.010, p=0.030] of school personnel were significantly related to how they regard the operational vitality of Recollect schools. The results further implies that the older and the longer they are employed, the type of school—a bigger school for that matter, and the position of school personnel—usually the administrators influenced their assessment of the quality of Catholic education due to their familiarity of and experience in the Augustinian Recollect schools. In particular, the school administrators must have known something or have enjoyed privileged knowledge unheard by other school personnel which allowed them to make a more informed assessment.

 Table 2. Relationship between Age of the School Personnel and their Assessment on the Quality of Catholic Education

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Variable	ρ	df	Р
Catholic Identity and Mission	-0.092	196	0.197
Leadership and Governance	-0.150*	196	0.035
Learner Development	-0.086	196	0.229
Learner Environment	-0.119	196	0.096
Operational Vitality	-0.158*	196	0.026
Quality Education	-0.143*	196	0.045
*Significance at 0.05			

Table 3. Relationship between Length of Service of School Personnel and their Assessment on the Quality of Catholic Education

Variable	ρ	df	Р
Catholic Identity and Mission	-0.129	196	0.070
Leadership and Governance	-0.223*	196	0.002
Learner Development	-0.135	196	0.058
Learner Environment	-0.091	196	0.197
Operational Vitality	-0.244*	196	0.001
Quality Education	-0.194*	196	0.006
*Significance at 0.05			

Table 4. Relationship between School of Origin of School Personnel and Assessment on the Quality of Catholic Education

Variables	χ2	Df	р
Catholic Identity and Mission	11.880	8	0.157
Leadership and Governance	14.961	8	0.060
Learner Development	13.744	8	0.089
Learner Environment	5.592	8	0.693
Operational Vitality	21.954*	12	0.038
Quality Education	11.004	8	0.201

*Significance at 0.05

Table 5. Relationship between Designation of School Personnel and their Assessment on the Quality of Catholic Education

Variable	χ2	df	Р
Catholic Identity and Mission	4.177	4	0.383



Leadership and Governance	3.022	4	0.554
Learner Development	8.329	4	0.080
Learner Environment	5.092	4	0.278
Operational Vitality	14.010*	6	0.030
Quality Education	3.660	4	0.454

*Significance at 0.05

Conclusion

The level of quality of Catholic education of Augustinian Recollect schools in Negros is excellent in accordance to the domains, standards and benchmarks of an excellent Catholic school set by the Philippine Catholic Schools Standards. The findings basically imply that as Catholic educational institutions Augustinian Recollect schools are firmly rooted on a solid Catholic foundation and demonstrate a strong commitment to the integral human formation and their evangelical mission as Catholic schools. Findings further signify that with qualified and committed school personnel Augustinian Recollect schools can deliver and perform what is expected of them as Catholic learning institutions with a Augustinian Recollect brand of education.

Likewise, the curriculum aligned with school's vision, mission, goals and objectives and permeated by Catholic faith and values, conducive learning atmosphere, and financial sustainability can support and realize total learner development and culture of quality for institutional advancement in Recollect schools. Notwithstanding the areas for continuous improvement, Augustinian Recollect schools effectively succeed in achieving the quality standards and efficiently perform as Catholic educational institutions in the light of the Philippine Catholic School Standards.

On the other hand, the correlation existing between age and length of service suggests that the older and the longer the school personnel remains in service, the more they become realistically critical of the policies and practices of the Augustinian Recollect schools. Also, the school of origin and designation influenced school personnel in terms of how they regard the operational vitality of Augustinian Recollect schools. Meaning to say, the type of school and position of school personnel influence their preception of the quality of Catholic education vis-à-vis their familiarity of and experience in the Augustinian Recollect schools.

Recommendations

Based on the findings of the study, the following recommendations are advanced to particular stakeholders to enhance and sustain the quality of Catholic education in Augustinian Recollect schools:

Board of Trustees of Recollect Schools. As the highest governing body of Augustinian Recollect schools, they may use the findings as baseline information to design an enhanced educational plan for Augustinian Recollect schools integrating the domains of Catholic education. Likewise, they may review the appointment of Augustinian Recollect religious administrators to address the concerns on continuity and consistency of program and policy implementation. They may also design a comprehensive OAR scholarship and graduate studies and training programs for all personnel of different Augustinian Recollect schools to calibrate their knowledge, expertise and skills in the teaching ministry and strengthen their spiritual formation.

School administrators. Religious and lay administrators of Augustinian Recollect schools may align the conduct of activities with the philosophy, vision, mission, goals, objectives and core values to provide more meaningful avenues for the promotion and development of the Christian Catholic faith and Augustinian Recollect identity among the members of the academic community, especially the learners. Also, they may develop a personnel development program and scholarships program for the professional and spiritual formation and growth of young and senior administrators, teachers and non-teaching personnel as critical partners in the educational apostolate of Augustinian Recollect schools; They may also rethink of and revisit the salary and benefits package for school personnel to attract and maintain excellent teachers. Likewise, they may organize forum or assembly regularly organized to



orient all stakeholders of the Augustinian Recollect school's identity, mission, programs, and activities; and allocate equitable financial resources to provide and improve adequate and functional learning facilities, spaces, resources, and services.

Relative to creating a conducive Catholic learning environment, they may enhance the visibility of signs, symbols, rituals, customs and traditions of Catholic faith and Augustinian Recollect identity. Moreover, they may establish more linkages and collaboration with the alumni, community, industry, and government to solicit more support for the programs and activities of the school and design an effective marketing strategy to increase enrollment.

Teachers. To promote total learner development, teachers may be given adequate training in pedagogy or be required to pursue graduate studies to calibrate their teaching expertise and skills in their discipline and in the Catholic faith and Augustinian Recollect spirituality and mission so that they may better integrate Catholic faith and Augustinian Recollect values in their teaching and learning activities. They may also consider the use of information and communication technology for interactive classroom activities that appeal to the needs of the present generation of learners.

Non-teaching staff. As collaborators in the teaching ministry of the Catholic school, they may also be given appropriate orientation and relevant training on Augustinian Recollect core values, personality enhancement, and technical skills to help them understand their role and function in the operation of the Augustinian Recollect schools.

Future researchers. They may replicate the study in other OAR Schools in the Philippines to benchmark on the quality of Catholic education they offer in the light of PCSS framework. They may explore topics related to: experiences of students and faculty in OAR schools; the negative influence of social media and improper use of technology; the growing diversity among students and teachers in Augustinian Recollect schools especially in the area of changing family structure and how these affect their spirituality; prevailing values of learners and teachers in relation to the Augustinian Recollect core values; employee compensation, benefits, and retiree preparation; and in-depth qualitative studies on the aspects not covered in this paper.

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Self-Compassion In Relation to Career and Talent Development Self-Efficacy of High School Students when Mediated by Hope

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ABSTRACT

This study aimed to determine the levels of self-compassion, career and talent development self-efficacy, and hope, and if there are significant direct and indirect relationships between self-compassion and career and talent development self-efficacy of high school students when mediated by hope of high school students. Additionally, sex and grade level differences in the levels of the aforementioned constructs were also explored. With the use of descriptive-comparative and correlational research designs, 261 high school students answered three self-report standardized questionnaires namely: The Self-Compassion Scale, The Career and Talent Development Self-Efficacy Scale, and The Integrative Hope Scale. Descriptive and Inferential analyses using Mean, T-test for Independent Samples, Analysis of Variance (ANOVA), Pearson Product Moment of Correlation, Multiple Regression Analyses, and Path Analysis were utilized to analyze the data gathered. Analyses of the data revealed moderate levels of self-compassion and career and talent development self-efficacy among the respondents. However, high level of hope was found. Significant sex and grade level differences (particularly between Grades 9 and 10) were found in self-compassion. However, no significant sex and grade level differences were found in the respondents' level of career and talent development self-efficacy. Likewise, no significant sex differences, but significant grade level difference in the respondents' levels of hope were found. Most importantly, direct and indirect relationships between self-compassion and career and talent development selfefficacy when mediated by hope were found to be significant.

Keywords: Career Guidance, Career and Talent Development Self-Efficacy, Hope, Self-Compassion, Path Analysis







Introduction

Career development is considered as one of the fundamental aspects of human development (Yazici, 2009; Eryilmaz & Mutlu, 2017). Career development is a process, which includes all the individual's roles before, during, and after being immersed in a particular profession (Kuzgun, 2000). Secondary school students all over the world are facing a dilemma in making career decisions (Macgregor, 2007; Issa & Nwalo, 2008; Watson, McMahon, Foxcroft, & Els, 2010), because there is a difficulty in reconciling educational requirements and career decision making (Onoyase & Onoyase, 2009). As career mismatch is linked to unemployment (United Nations, 2012), several studies highlighted the role of career guidance in schools to students' career decision making (Ikediashi, 2010; Austin, 2010; Despina, Kostas, Argyropoulou, & Tampouri, 2012; Jamali & Kalantarkousheh, 2015).

In Southeast Asia Region, efforts are exerted to address the issues in career decision making by conducting researches to strengthen the school-based career guidance programs. Yuen, Gysbers, Chan, Lau, and Shea (2010) gave birth to a new term in career guidance: *the career and talent development self-efficacy*, which denotes a positive approach to helping students realize their skills and talents which will be needed in their future career field. In a separate study, Yuen et al. (2006) emphasized that to achieve autonomy in learning, students should be confident in their own abilities, which reflects their beliefs concerning their self-efficacy (Gainor, 2006).

On the other hand, self-compassion, which speaks about our dialogue with ourselves (Manusov, 2011), was found to increase one's self-efficacy (Iskender, 2009; de Souza & Hutz, 2009). Similarly, the use of hope, which speaks about our perceived capability to attain significant life goals (Snyder, 2000), was found to increase self-efficacy in the areas of academic, career, and occupational domains, respectively (Feldman & Kubota, 2015; In, 2016; Hirschi, 2014). The present study, however, used hope as a mediator to give clarity on the results of the only published online local study to date (Nalipay & Alfonso, 2018). Results of the study found no significant direct relationship between self-compassion and career and talent development self-efficacy of college students, but a significant indirect relationship between the two constructs were found using hope as a mediating variable.

The green light to pursue this study is first, the dearth in the literature concerning this topic. Second, the eagerness of the researcher to incorporate psychological constructs in the career guidance program, as conventionally, results from standardized testing are used to aid career counseling, and third, no study was found trying to understand how these constructs operate in high school students. This study hopes to pave the way for enhancing the existing career guidance program of a private catholic school in Negros Occidental to better help students make informed career decisions.

Framework of the Study

As theoretical support for the present study, a relatively new career development theory was used. The tenets of this theory incorporate the interrelationships among constructs under investigation. Social cognitive career theory (SCCT) which was developed by Lent, Brown, and Hackett (1994), was based on the general social cognitive theory of Albert Bandura, who also happens to be the proponent of the concept of self-efficacy. This theory aimed to explain the three interrelated aspects of career development namely: (1) how basic academic and career interests develop; (2) how educational and career choices are made; and (3) how academic and career success is obtained. Additionally, there are three variables that serve as the building blocks of social cognitive career theory – these are self-efficacy beliefs, outcome expectations, and goals.

Self-efficacy beliefs pertain to personal performance accomplishments, vicarious experiences, social persuasion, and physiological and emotional states. Of the four, personal accomplishments are said to be the most compelling source of efficacy information, but still, the influence of all other factors like the person's internal states and exposure to different social models could also affect one's over-all self-efficacy. *Outcome expectations* are one's conception of the consequences of his actions or involvement in an activity. *Personal goals*, on the other hand, are one's intentions to engage in an activity. In SCCT,



two types of goals have been identified: choice goals and performance goals. By setting goals, one can organize their behavior and even sustain it, even in the absence of feedbacks and setbacks.

In trying to understand career development in the perspective of SCCT, Jo, Ra, Lee, and Kim (2016) highlighted the importance of career decision self-efficacy in the development of individual's career interests, goals, choices, experiences, and performances. Dogan (2014) on the other hand, further define career decision as making a choice or a plan concerning one's profession, education program, job, and school. Therefore, career decision self-efficacy can be defined as beliefs that people use when making career decisions as part of the career development goals. These goals according to Betz (2000 cited in Baglama & Uzunboylu, 2017) are accurate self-evaluations, collecting information about vocations, goal setting, planning, and problem-solving.

Methodology

The present study used the descriptive-comparative and correlational approaches to measure the levels, sex and year level differences, and direct and indirect relationships in and among Self-Compassion, Career and Talent Development Self-Efficacy, and Hope of high school students.

The respondents of the study were the Junior High School and Senior High School students from a private catholic school in Negros Occidental for the Academic Year 2018-2019, of which 72% (n=188) are males, and 28% (n=73) are females.

The data were gathered using three standardized questionnaires. The Self-Compassion Scale was used to measure the respondents' level of Self-Compassion. The Career and Talent Development Self-Efficacy, scale was used to measure the respondents' Career and Talent Development Self-Efficacy, and The Integrative Hope Scale was used to measure the respondents' level of Hope. Local reliability testing was conducted and yielded the following reliability coefficients: CTD-SES (r = 0.87), SCS (r = 0.76), and IHS (r = 0.90).

Descriptive and Inferential statistical tools were used to analyze the data. To determine the levels of self-compassion, career and talent development self-efficacy, and hope, Mean was used. Furthermore, to determine sex differences in the levels of the aforementioned constructs, T-test for Independent Samples was used. To determine grade level differences in the levels of the aforementioned constructs, Analysis of Variance (ANOVA) was used. Lastly, to determine the direct and indirect relationship between self-compassion and career and talent development self-efficacy of high school students when mediated by hope, Pearson Product Moment Correlation, Multiple Regression Analysis, and Path Analysis were used.

Results and Discussion

Level of Self-Compassion, Career and Talent Development Self-Efficacy, and Hope

The descriptive results showed that the level of self-compassion of high school students in a private catholic school in Negros Occidental as a whole is moderate (Mean=3.099; SD=.4253). This means that respondents have a balanced intrapersonal perspective which renders them capable of fostering care and concern for themselves. This also reflects a low level of pessimism and a notable degree of optimism in dealing with their everyday life as a student. Literature suggests that high level of self-compassion is linked to decreased negative affect (Neff, Kirkpatrick, & Rude, 2007), and increased positive affect and happiness (Neff et al., 2007).

Likewise, the level of career and talent development self-efficacy of high school students in a private catholic school in Negros Occidental is moderate (Mean=4.291; SD=.7043). This means that generally, respondents display interest in activities that could develop their talents. This also signifies that they have the confidence to acquire positive work habits and values that would be essential in their career journey. Lastly, respondents appear to be interested in exploring different career possibilities.



Lastly, the level of hope of high school students in a private catholic school in Negros Occidental is high (Mean=4.610; SD=.5777). Generally, this means that respondents have realistic perceptions of life. This also signifies that respondents can set goals and as well, able to materialize the ways on how to achieve them. According to Kwok, Cheng, and Wong (2015), individuals with higher levels of hope tend to display higher degrees of motivation in pursuing their goals, and also appeared to be somewhat satisfied with what they have achieved in life.

The present study also investigated on the levels of the constructs under investigation in terms of their sub-scales. With the sub-scales of the Self-Compassion Scale, respondents have moderate levels of Self-Kindness (Mean=3.295; SD=1.1240), Self-Judgment (2.784; SD=1.1066), Common Humanity (Mean=3.439; SD=1.1183), Isolation (Mean=2; SD=1.2315), Mindfulness (Mean=3.455; SD=1.0584), and Over-identification (Mean=2.889; SD=1.0700). As Neff (2003a) had conceptualized it, selfcompassion is composed of three components. Evidently, in the Self-Compassion Scale, six subscales have been incorporated to indicate that the study of self-compassion has positive and negative poles, which represent compassionate and uncompassionate behavior: self-kindness and self-judgment, common humanity and isolation, and mindfulness and over-identification. According to Neff and Germer (2018), in trying to understand self-compassion, researchers should note that it has "yin" and "yang" qualities, which stems from the Chinese philosophy of opposite yet interdependent qualities like male and female, good and bad, etc. Self-compassion is yin in the sense that it leads toward comforting, validating, and soothing in times of suffering. It is yang in the sense that it leads toward protecting, motivating, and providing self-security. In trying to analyze the means of the "yin" and "yang" subscales of the Self-Compassion Scale, it is directly observed that yin sub-scales (Self-Kindness, Common Humanity, and Mindfulness) have slightly higher means compared to yang sub-scales (Self-Judgment, Isolation, and Over-identification).

Moreover, when it comes to sub-scales of the CTD-SES, levels of talent development (Mean=4.252; SD=1.209) and work habits and values (Mean=4.201; SD=1.135) of high school students are moderate, while the level of their career exploration is high (Mean=4.423; SD=1.113). The high level of respondents' career exploration could be supported by the concept of the psychological moratorium of Erik Erikson, where he posited that adolescents tend to explore their roles brought about by identity and career confusions. This high level of career exploration doesn't mean a good evaluation of the existing career guidance program, but an implication of greater responsibility on the part of the counselors to assist students in their quest for career decision making.

Lastly, in terms of sub-scales of the Integrative Hope Scale, respondents reported high level of positive future orientation had the highest mean (Mean=5.247; SD=1.060), trust and confidence (Mean=4.582; SD=1.205), and social relations and personal value (Mean=4.554; SD=1.405). However, respondents only have a moderate level of hope in the lack of perspective sub-scale (Mean=4.262; SD=1.187).

Sex and Grade Level Differences in Self-Compassion

The inferential results showed that there is a significant sex difference in the levels of self-compassion of high school students (p<0.05). Statistically, the present study revealed that males are more self-compassionate than females. Levels of self-compassion tend to differ among men and women assuming various gender role orientations, which would manifest as either feminity or masculinity. For instance, the feminine gender norms of nurturance and caring may facilitate self-compassion. However, norms of self-sacrifice may lead to lower levels of self-compassion among feminine women, as the needs of the self may have been put into secondary consideration. Research showed that women who are androgynous may facilitate authenticity and are comfortable asserting themselves (Harter, Waters, Whitesell, & Kastelic, 1998 cited in Yarnell et al., 2018). Men, on the other hand, who conform strictly to masculine gender orientation may inhibit exhibition of vulnerable feelings and intimacy with others, which could lead to low levels of self-compassion among men (Reilly, Rochlen, & Awad, 2014). Additionally, this sex difference may also be because of society's self-sacrificing tag on women. Women always have a greater tendency to prioritize the needs of others, which may have some impact on their ability to be self-compassionate. Women have also been found to use more negative self-talk



than males (DeVore, 2013). These reasons may warrant a reasonable explanation as to the existence of sex differences in self-compassion. However, previous studies found no significant sex difference in self-compassion (Iskender, 2009; Neff, Pisitsungkagarn, &Hseih, 2008; Neff & Kirkpatrick et al., 2007; Neff & Pommier, 2013; Raque-Bogdan, Ericson, Jackson, Martin, & Bryan, 2011; Maccabi, Eamoraphan, & Vapiso, 2017; Muris, Meesters, Pierik, & de Kock, 2016).

Likewise, significant grade level difference was found in the respondents' level of self-compassion (p<0.05). Currently, there is a dearth in literature venturing on the grade level differences in self-compassion. Studies currently available investigated on age differences, which would not be technically appropriate to explain this significance in terms of age, as respondents are homogenously between 12-19 years old. But in trying to understand self-compassion in the light of age difference, Elkind (cited in Neff, 2003a, 2009) contended that self-compassion is a challenging task for teenagers. Adolescence is an age where an individual engages in self-evaluations concerning perceived social standards. In Elkind's concept of teenage egocentrism, the mechanisms of personal fable and imaginary audience contribute largely to these self-evaluations, making an individual magnify defects and imperfections, and heightened self-monitoring attitudes. Therefore, this phenomenon of teenage egocentrism may contribute to higher scores in self-criticism, isolation, and over-identification. And for that reason, self-compassion is expected to be lower in adolescents, though ironically, self-compassion is what teenagers need to stay in track amidst challenges. Post-Hoc test revealed that the difference occurred particularly between Grades 9 and 10.

Sex and Grade Level Differences in Career and Talent Development Self-Efficacy

The statistical analyses of the present study yielded no significant sex and grade level differences in Career and Talent Development Self-Efficacy of high school students. Results of the present study were not consistent with the findings of Yuen et al. (2010), which found significant main effects for sex and grade level. These identified significant differences suggest that girls are more confident than boys in the area of work habits and values. Additionally, findings also suggest that Grade 7 students are more confident when compared to Grades 8 and 9 students in the area of talent development, work habits, and career exploration. However, a study conducted by Ogutu, Odera, and Maragia (2017) found gender to have significant influence over self-efficacy factors about the career decision making of students.

Nevertheless, results of the present study suggest that the respondents have reasonable confidence in their career and talent development, although it can be noticed that at some point, self-efficacy tends to reduce slightly as students get older. This also highlights the thought that career and talent development for secondary students involves learning processes about the understanding of one's strengths, abilities, and interests, and interacting with the world of work. Career and Talent Development Self-Efficacy represents the students' self-awareness concerning their talents and the necessary requisites (values and habits) in the world of work.

Sex and Grade Level Differences in Hope

Results found no significant sex difference in hope of the high school students in a private catholic school in Negros Occidental. This is consistent with the findings of Yang, Zhang, and Kou (2016) who also found no sex differences in the levels of hope of the adolescents. In the book of Snyder (1999) entitled Coping: The Psychology of What Works, he outlined the female and male differences in hope. According to him, males should have higher level of hope when compared to females because males are supposed to possess agentic approach to things. This made him also highlight the gender stereotype literature which describe men in terms of instrumental characteristics, and women as being expressive and are aligned toward communal matters. However, Snyder also highlighted the results of his study with both children and adults showing no sex differences in the levels of hope. As furthered by him, what accounts to this is that both sexes are now inclined toward doing tasks or instrumental activities. With this, he came into conclusion that when assessing men and women in groups concerning hopeful



thinking, similarities rather than differences should emerge. However, results of the study of Heaven and Ciarrochi (2008) found significant sex differences in the levels of hope, such that females exhibit less hope when compared to males. During the adolescent years, both males and females encounter different gender stereotypes. With that, females have the tendency to internalize that they are less capable than males. Authors further explained that low levels of hope in females may render negative impact in their adjustment to adversity and their ability to cope with the challenges of life, which can also be detrimental to their well-being. Chang (2003) in his study using middle-aged men and women, found significant gender differences in both agentic and pathways thinking. Women reported to have weaker pathways thinking when compared to men. This implies that, as women aged, they may experience failures in the process of reaching their goals, and are less able to find new ways on how to achieve them.

However, present study found significant grade level difference in the levels of hope of the respondents. Heaven and Ciarrochi (2008) conducted a longitudinal study examining the trajectory of hope over the span of four years. They observed that levels of hope tend to decrease over time, which was contrary to the findings of the present study. Furthermore, studies have highlighted the role of transition periods in trying to find accounts to the changing hope among adolescents. Ciarrochi, Parker, Kahsdan, Heaven, and Barkus (2015) found that hope predicted all forms of well-being in Grade 7 and Grade 10 Australian students, which also have the same educational system (K to 12) to the Philippines. These transition periods in the educational life of the respondents may have accounted for this difference. Given that hope has been associated with successful pursuit of goals, this significance in the levels of hope among the respondents, means that hope in transition is associated with more engagement, and as a result could also reflect the current status of well-being of the respondents. The private catholic school has been regarded as the best engineering preparatory high school in Negros Island. Most students, especially in high school, opted to enroll in this school because they wanted to become engineers, as the school offers an additional technical program. Statistically, respondents' means in hope tend to slightly increase as they progress in the educational ladder. This could mean that through the unique dual curriculum of the school, agency and pathways thinking as components of hope may have been strengthened.

Direct and Indirect Relationship between Self-Compassion and Career and Talent Development Self-Efficacy when Mediated by Hope

The structural model was estimated using self-compassion as the predictor, hope as the mediator, and career and talent development self-efficacy as the outcome variable: self-compassion significantly correlated with hope (β =.417; p<0.05), hope significantly correlate with career and talent development self-efficacy (β =.454; p<0.01), also, self-compassion significantly correlated with career and talent development self-efficacy (β =.188; p<0.01). Therefore, the present study found out that there are significant direct and indirect relationships between self-compassion and career and talent development self-efficacy of high school students when mediated by hope.

Result of the present study is in part contrary to the results of the study of Nalipay and Alfonso (2018) who found no significant direct relationship between self-compassion and career and talent development self-efficacy, but found significant indirect relationship between the two constructs when mediated by hope. This means that respondents who display reasonable amount of care and concern to themselves in times of failure and challenging moments of their journey as a student are more likely to possess positive outlook in the process of attaining their goals, which in turn, is associated with positive feelings regarding their development of talents and skills, acquisition of positive work habits and values, and exploration of career opportunities, which are necessary in the attainment of the desired goals. Moreover, results of the present study also add to the growing data pointing to hope as an effective mediator between two psychological constructs



The results of the present study can also be viewed under the concept of engine model of well-being (Jayawickreme, Forgeard, & Seligman, 2012). Engine model of well-being is a systems approach to understanding well-being. The constructs presently under investigation are constructs that constitute an individual's well-being, such that these constructs are also considered part of positive psychology, which emphasizes human strengths. In the engine model of well-being, quality of life has been viewed as an interplay among three variables: input, process, and outcome variables. Input variables have two kinds of influences: exogenous and endogenous resources. Exogenous resources include environmental variables such as income and family situation. Endogenous resources, however, are personality traits that contribute to an individual's attainment of a state of well-being. As an input variable, selfcompassion is considered an endogenous resource to well-being by allowing an individual to show care and concern to himself amidst adversities. According to de Souza and Hutz (2016) and Neff et al. (2005), the experience of failures can be a threat to one's self-efficacy beliefs. However, self-compassion plays as a protective role by letting an individual realize that failures are common human experience (common humanity). Self-compassion enables an individual to see every situation as a learning experience, and also encourages an individual to take on challenges, and engage in activities that could lead to selfdiscovery. For this reason, self-compassion has been recognized to cause an increase in the levels of hope by facilitating the identification of goals and strengthening the motivation to achieve these goals even when confronted with difficult situations (Yang et al., 2016).

Hope on the other hand, is considered as a process variable when viewed in the perspective of the engine model of well-being. These (process variables) are internal states that influence the choices of an individual. According to Schrank et al. (2011) being hopeful entails recognition of an individual's strengths and other personal-social skills, as well as looking forward to and planning for the future. Moreover, according to Hirschi et al. (2015), hope enhances one's awareness of his abilities, facilitating a positive evaluation of their skills and talents, which constitutes self-efficacy.

With the engine model of well-being, present study shows that the endogenous trait of self-compassion is associated with an individual's perceived ability to establish goals, create ways on how to attain them, and provide alternatives when challenges are encountered along the way (hope), which in turn facilitates greater sense of confidence in one's skills and talents (career and talent development self-efficacy).

Mediated by Hope					
Variable	R	r-square	β -weights	p-value	Interpretation
Self-	550		.188	.001	Significant
	.339	.315	.454	.000	Significant
Hope					

Table 1. Direct and Indirect Relationship between Self-Compassion and CTD-SE when Mediated by Hope

Note: Dependent Variable (CTD-SE) Result is significant if $p \le 0.01$

Conclusions and Recommendations

The most important findings of the present study signify that the respondents, who were showing enough care and concern for themselves and view failures in the context of shared human experience, display a greater sense of positive outlook in their journey towards formulating attainable goals, which in turn, contribute to an enhanced feelings of confidence regarding their talents and skills. Results of the present study suggest that in order to improve the respondents' confidence in the development of their talents, acquisition of important work habits and values, and drive to explore different career



possibilities, programs should be focusing on enhancing self-care by getting rid of negative self-talks and fostering self-awareness through activities that could strengthen the students' perceived capability to create specific and attainable goals, and also teach ways on materializing concrete ways on how to achieve these goals.

With these findings, the present study recommends that career guidance program should include activities that foster enhancement of self-compassion and hope as important precursors to better self-efficacy beliefs. Likewise, curriculum developers are also encouraged to highlight positive psychology in the curriculum to ensure holistic development among students, which is viewed as an important aspect of career decision making. Finally, all the other stakeholders (parents, teachers, school administrators) of the child's education, are encouraged to monitor and be aware of the challenges that are encountered by the students, including career confusions and acquisition of necessary life skills.

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Students' perceptions about internationalization higher education: The evidences From Vietnam

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ABSTRACT

The use of term internationalization in higher education is relatively new, however it is now used for a vast array of services and functions in higher education and has a variety of meanings. This research is conducted from the perspective of Vietnamese student about internationalization higher education and these factors affected deeply to their received result. Research methods include questionnaire surveys and use multivariate data analysis (Cronbach Alpha test, correlation and regression). By a survey of 283 Vietnamese students in 19 universities developing high quality training programs or international programs, this research reveals these factors creating a positive impact on the internationalization of education, which are affected to student's received result: (1) Curriculum, (2) Lecturers, (3) Learning Enviroment. Meanwhile, Facilities factor doesn't have any effect to students' received results.

Keywords: High Quality Training, Internationalization of Higher Education, Student's Perception, Received Result.







Introduction and theorical background

Nowadays, international integration has a positive effect on Vietnamese universities' activities, in terms of universities' input resources and outcome results. However, the degree of integration of each university is different. In fact, international integration can only occur in 30% of universities and concentrated in big cities. In the last 5 years, international integration with partners from the Asian-Pacific region, especially Japan and South Korea has increased significantly in many different forms.

In terms of results, international integration has a positive impact on the universities' quality of training in general but has not created an international training environment. Students have a clear perception and are beneficial from international integration: enhance of foreign language capabilities, knowledge and skills. Students can feel the benefits of integration. The interview results recorded that employers highly appreciated the quality of the international programs not only in foreign languages skills but also in attitude and flexibility, the willing to update knowledge at work. International integration has led to the improvement of the international training environment, by attracting foreign students to exchange and study in Vietnam. Despite the improvement in nationality diversification, foreign students coming to Vietnam are still mostly students from ASEAN countries, especially from Laos (in the form of agreements) and other countries who come mainly through scholarship programs and projects. In addition, international integration has also created more opportunities for Vietnamese students to participate in overseas exchange activities, abroad internship programs, but still limited in some priority fields and industries.

Originally, internationalization is defined as "activities, programs and services that are include in international studies, international education exchange and technical cooperation" (Arum & Van de Water, 1992). Similarly, Van der Wende (1997: 18, citing Knight, 2008) proposed to consider internationalization as "any systematic effort aimed at helping higher education to meet the requirements and challenges related to the globalization of society, economy and labor market". In support for the definition of internationalization, Van der Wende's opinion reminds us of the difference between internationalization and globalization.

While the above scholars have proposed internationalization as a series of specific activities, Knight (1994, referring to Knight, 2008; 2004), from another angle, has defined internationalization as one too submit. The definition that was revised in 2004, widely used, stated: *"internationalization is the process of integrating global, international and intercultural elements with the purpose, function, and transportation of education. University"* (Knight, 2004). Like Van der Wende's definition, this clearly distinguishes internationalization from globalization.

So far, Knight's (2014) definition has been the most widely used, even a formal definition of globalization around the world (de Wit, 2014). However, even though Knight thinks her definition reflects neutrality, this definition refers to internationalization of education through activities, levels as well as the results of internationalization. However, there are certain limitations to this definition. The biggest drawback is that Knight has not mentioned the process as well as the implementing steps of educational internationalization (Qiang, 2013). In addition, the past decade has witnessed the trend of internationalization of new education as well as the change of actor's role in the worldwide internationalization map. The dominance of Western nations on international agendas has been challenged by the pioneering role of East Asian nations. Therefore, Van de Wit (2014) implicitly proposed that there would be other alternatives to this official definition.

In fact, in addition to Arum & Van de Water, der Wende, Knight and de Wit, many other scholars have also tried to develop definitions of internationalization and their views are quite different. Haan (2014) analyzed 8 definitions given by 7 different scholars at different times and pointed out 3 main characteristics of internationalization of education:

Initial definitions consider internationalization as specific activities while later definitions consider internationalization a strategic process.

Currently, internationalization is seen more comprehensively.



While at the beginning, internationalization is largely defined at the organizational level. However, with newer definitions, it is perceived at more levels in places where internationalization is carried out.

These characteristics imply that the definitions themselves develop and there should not be any single definition that governs. Yang (2014) stated, whether Knight's definition is outstanding, *"it is based on and therefore in accordance with the experience of Western nations"*. He also pointed out that "our understanding of internationalization depends largely on the specific social-cultural context" (Yang, 2002). In other words, the definitions of internationalization need to be localized, considering the level of development of the internationalization program in specific countries or organizations, de Wit (2014) suggested that internationalization may require re-conceptualization.

In order to achieve good results in the internationalization of education, colleges and universities need to prepare tangible resources as well as intangible resources (dynamic capabilities). Tangible resources such as good facilities motivate better learning, while intangible resources such as well-qualified lecturers, especially in terms of foreign language skills, will bring good knowledge to students and facilitate their communication with foreign partners more smoothly. Additionally, the comfortable learning environment in which there are good enthusiastic supports among students as well as exchange activities between schools improves the international integration. Finally, the curriculum or training programs formally and internationally structured, which incorporates global phenomena, bring more international input and output (Bui et al, 2018).

Methodology

Developing research models

The purpose of research is to develop a research model to analyze the factors affecting received result of students who learn in foreign collaboration program in Vietnamese universities. We used Delphi method to establish the research model. Information saturated method was used to identify factors in the model. Using face to face interview method to ask educational experts about what factors can impact on received result of student with training programs. The experts were suggested at least two factors that can impact on received result of student. After six interview rounds with six experts, 2 consecutive experts did not give new factors, we obtained 04 main factors that were determined to influence the students' perceived results with the curriculum include: (1) Facilities; (2) Lecturers; (3) Studying environment; (4) Training program. Therefore, we propose a research model as follows:



The research hypotheses are stated as follows:

H1: Facilities factor has a positive impact on received result of students in foreign collaboration program.

H2: Lecturer factor has a positive impact on received result of students in foreign collaboration program.

H3: Studying environment factor has a positive impact on result of students in foreign collaboration program.

H4: Training program has a positive impact on result of students in foreign collaboration program.

Instrument development

The structural questionnaire was used as instrument to collect data. In order to develop items-measure the constructs in the model we some qualitative methods. First, we used in-depth interviews with 10 educational experts at universities in Hanoi. Theses expert are senior manager in foreign collaboration program at universities. Each expert was asked about aspects of each construct in the model and providing at least 3 aspects to measure for constructs. After that, we invited seven other experts to evaluate each aspect provided before by a 10-point scale. As a result, we gained 22 items of five constructs in the model with a retained average score of 6.5/10. The items continue to be adjusted through pilot test with 20 students who were studying in collaboration program at Foreign Trade Universities and National Economics University. The official items are described in table 1. Items rated with Likert scale of 5 points with 1 are completely disagree and 5 is completely agree.

Code	Items
I. Facilitie	s S
CS1	The university has a well-equipped classroom system to meet the studying demands of students
CS2	The library system is fully equipped
CS3	Textbooks are fully equipped and updated
CS4	In general, you think that the university has well-equipped facilities
II. Lecture	rs
TC1	Lecturers have modern teaching styles
TC2	Lecturers regularly interact with students during the teaching process
TC3	Lecturers have the ability to use foreign languages well in the teaching process
TC4	Lecturers have good professional knowledge
TC5	Lecturers evaluate students' learning outcomes fairly
III. Studyi	ng environment
MT1	The university has many activities in the course
MT2	Vietnamese students are quite friendly during studying process
MT3	The university organizes many extracurricular activities and cultural exchanges
MT4	The cost of transferring to school in Vietnam is quite appropriate
IV. Trainii	ng program
CT1	The program is up-to-date.
CT2	Courses in the program are designed in a modern way.
CT3	The course contents are up-to-date and useful for students
CT4	The whole program is scientifically designed.
CT5	In general, the program is quite suitable for students
V. Receive	d result
KQ1	You gain useful knowledge as expected when attending courses in the program.
KQ2	You have the opportunity to experience a good learning environment.

Table 1 The items in the construct



Code	Items
KQ3	The study program brings you many benefits (degrees, employment opportunities, cultural experience).
KQ4	In general, you are satisfied with your program.

Sample

By a survey of 283 Vietnamese students in 19 universities developing high quality training programs or international programs. The research team had selected 19 higher education institutions for in-depth interviews and survey by questionnaires. Higher education institutions are selected on the stratified sampling method with 3 criterias to choose from: geographic area, ownership, and main teaching majors. Higher education institutions are selected according to the above stratified sampling to ensure representativeness of higher education institutions (Table 2). The selection of higher education institutions to conduct in-depth interviews and survey by questionaries ensures both science and feasibility in conditions of limited time and resources of research.

No	University	Location	Ownership
	Foriegn Trade University	Red river delta	MoET
	Hoa binh University	Red river delta	Private
	International School, National university	Red river delta	National university
	Hanoi Open University	Red river delta	
	Thai Nguyen University of Technology	Northwest	Regional University
	University of Information & Communication Technology, Thai Nguyen University	Northwest	Regional University
	University of Agriculture and Forestry, Hue University	Central	Regional University
	Hue College of Economics, Hue University	Central	Regional University
	Hue University of Medicine and Pharmacy	Central	Regional University
	University of Foreign Languages, Hue University	Central	Regional University
	Duy Tan University	Central	Regional University
	International Student exchange center, FPT University	Central	Private
	University of Economics and Law, Vietnam	HCM-South	National university
	National University- HCM	Eastern	
	University of Economics, HCM City	HCM-South	MoET
		Eastern	
	Saigon University	HCM-South	Provincial University
		Eastern	
	Ho Chi Minh City University of Technology	HCM-South	Private
		Eastern	
	Can Tho University	Southwest	Regional University
	Tra Vinh University	Southwest	Provincial University
	Tay Do University	Southwest	Private

 Table 2: List of higher education institutions

Most of students all know about Programs recognition (brands recognition): Joint Programs was the most popular among students (78.3%), followed by High-quality Programs (43.3%); Advanced Programs (36.5%); Talented engineers Programs (26.4%) and others (5.4%). The largest proportion



came from the cooperative education programs from the ASEAN (16%), followed by programs from Europe (14.7%); the US originated programs (14.3%); Japan (11.3%); Korea (8%) and other countries and regions (35.7%). 283 Vietnamses students come from very diversify programs: The highest population came from students of Talented engineers Program (60.9%), followed by students from Joint Programs (14.6%); Advanced Programs (12.8%); High-quality programs (8.4%) and others (3.3%) Students mostly chose to study fulltime in Vietnam with total proportion of approximately 90%, meanwhile only approximately 10% of students chose the top-up form to study abroad. Biggest difficulty that students have while studying foreign related programs was the language barrier (65.5%). The following difficulties were financing problems (50.2%), followed by differences in educational culture (20.1%); lack of learning materials (18.3%) and others (3.6%).

Data analysis method

The authors used multivariate data analysis method to analyze the data and test research hypotheses. In order to evaluate reliability of each construct using Cronbach's Alpha coefficient with the criteria is larger than 0.7 (Hair et al, 2010). Correlation and regression analysis method was used to test the research hypotheses with statistically significant at 0.05. In addition, we used descriptive statistics (Mean, SD) to evaluate perceiving level of student.

Research results

Reliability analysis

The Cronbach's Alpha coefficients and the corrected item-total correlation were used to test reliability of each construct. Result analysis showed that all constructs in the model received internal consistency: Cronbach's Alpha coefficients were larger than 0.7, all corrected item-total correlation of each items in the model were 0.3 (table 3):

Construct	Number of ItemsCronbach's Alph		Minimum Corrected Item-Total Correlation
Facilities	4	0.800	0.587
Lecturer	4	0.791	0.554
Studying Enviroment	4	0.730	0.381
Curriculum	5	0.887	0.668
Received results	4957	0.863	0.672

Table 3 Reliability of construct in the model

Correlation analysis

In order to evaluate the relationship between constructs in the model we used Pearson's correlation coefficient. The findings indicate that the constructs in the model had a positive correlation which showed that the constructs in the model have the relationship. In details, the strongest associate between curriculum construct and received result (r = 0.748) and weakest with facilities (r = 0.546) (Table 4).

Construct	CS	GV	MT	СТ	KQ
Facilities (CS)	1				
Lecturer (GV)	.557**	1			
Learning Environment (MT)	.538**	.499**	1		
Curriculum (CT)	.623**	.647**	.578**	1	
Received results (KQ)	.546**	.582**	.628**	.748**	1
**. Statistically significant 1%					

 Table 4 The correlation between the constructs in the model



Regression analysis

OLS regression was used to test the research hypotheses. Analysis result showed that received result was impacted from lecturer ($\beta = 0.114$, p = 0.039 < 0.05), learning environment ($\beta = 0.275$, p < 0.01), curriculum ($\beta = 0.511$, p < 0.001). The VIFs in analyzing were smaller than 10 showed that collinearity phenomenon did not affect the analysis result (Hair et al, 2010). In addition the result did not show the clear effect of learning environment construct on received result (p = 0.581 > 0.05). On other hand, the study accepted hypotheses H1, H3 and H4, rejected H2.

Independent variable	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Collinearity Statistics	
*	В	SE	Beta		•	VIF	
(Constant	.356	.178		2.005	.046		
Facilities (CS)	.026	.048	.028	.552	.581	1.858	
Lecturer (GV)	.114	.055	.105	2.076	.039	1.880	
Learning Environment (MT)	.275	.049	.267	5.630	.000	1.660	
Curriculum (CT)	.511	.055	.509	9.222	.000	2.249	
$R^{2}_{adj} = 0.618$							
F = 115.293; p-value (F) = 0.000							
Dependent variable: Received Result (KQ)							

 Table 5 Regression analysis result

Evaluation of programs' quality criteria and received results

The facilities provided for foreign-related educational programs were highly evaluated with quite remarkable value (3.81). In details, the highest score belonged to the 'guaranteed classroom system' criteria (3.89) and the lowest was from 'syllabi, materials are fully provided and up to date' criteria (3.57). The standard deviation from each criterion was not high showed the facilities requirements were highly evaluated.

Criteria	Mean	SD				
Facilities (Mean = 3.81, SD = 0.73)						
1. Guaranteed classroom system	3.89	0.94				
2. Good library system	3.82	1.02				
3. Syllabi, materials are fully provided and up to date	3.75	0.86				
4. Facilities for teaching and learning	3.78	0.88				
Lecturers (Mean = 3.89, SD = 0.64)						
1. Current teaching style	3.78	0.87				
2. Lecturers often interact with students during teaching periods	3.95	0.8				
3. Ability to use foreign languages during teaching period	3.78	0.87				
4. Lecturers evaluate students' results fairly and objectively	4.05	0.73				
Learning environment (Mean = 3.72 , SD = 0.68)						
1. Universities have several learning activities in the course	3.86	0.92				
2. Students are friendly with each other	3.92	0.89				

 Table 6 Mean, SD of construct and each item in the model



Criteria	Mean	SD		
3. Universities have several extracurricular activities and cultural exchange activities	3.72	0.98		
4. Acceptable fees to top-up and exchange to partnership universities/colleges	3.37	0.87		
<i>Curriculum (Mean = 3.70, SD = 0.70)</i>				
1. The curriculum is up to date	3.8	0.84		
2. The subjects in the course are modernly designed	3.63	0.89		
3. Knowledge from subjects are up to date and useful to students	3.73	0.83		
4. Courses are	3.61	0.84		
5. Teaching curriculum is highly appropriate for students	3.71	0.79		
Received results (Mean = 3.81, SD = 0.70)				
1. Students received useful knowledge as expected	3.77	0.76		
2. Opportunities to experience good learning environment	3.79	0.84		
3. Courses provided several benefits (in terms of degrees and job opportunities)	3.83	0.89		
4. Students were satisfied with the courses	3.86	0.83		

Discussion and recommendations

Conclusion

Foreign-related educational programs were recognized better than other educational programs. This could be explained by better marketing budget which led to wider coverage of promotion information related to the linkage programs and foreign-related educational programs.

Talented engineers Programs or Advanced Programs were the most chosen by students. Reasons could be related to the tuition fees and the programs' reputation (harder admission requirements)

Students mostly chose to study fully in Vietnam with approximately 90% for the foreign-related programs. High top-up cost could be a reason since it could be a burden for students and their families, therefore top-up study was not prioritized.

Languages barrier difficulty and finance difficulty are biggest barriers to students while pursuing foreign-related educational programs. This shown the preparation for foreign language during their high-school periods were underwhelmed, also there was a big gap between the tuition fees and the income of students' household who chose the foreign-related programs.

Students highly evaluated the facilities criteria of foreign related programs. That means universities were fully prepared the facilities to meet the requirements of carrying out a foreign-related program.

Courses curriculum, learning environment and lecturer were the criteria that mostly affected students' received results. This could explain the highly sensitivity of students nowadays toward the curriculum since it could be related to the labor market and job opportunities after graduation. Facilities criteria were not making a remarkable effect since the priority for foreign-related programs was better than other educational programs, which reduced the students' expectation toward facilities criteria.

Recommendation

From the results of the study, the authors have pointed out that good facilities are not among the decisive factors for achieving better results in the internationalization of education. In contrast, faculty, learning environment and curriculum/training programs are important factors for facilitating the internationalization of education. Therefore, in order to promote the internationalization of education, colleges and universities need to focus on improving faculty capabilities, creating a professional learning environment and up-to-date curriculum in align with international programs.



Universities and colleges should consider having the foreign language abilities in admission requirements and also have the enhancing language abilities courses for students who register the foreign related programs.

Consider building finance aiding mechanism; re-evaluate the tuition fee to rebuild the tuition fee framework and to build finance aiding funds that suitable for foreign related educational programs.

Negotiate and make agreement with partners about the prioritized policies for exchange students to the partners' universities, especially in terms of finance aiding or exchange fees

Enhance the appropriateness of programs' curriculum, find the most suitable cooperative program which is up to date that met the requirements of labor market.

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Engineering Programme Accreditation: A Comparison Study Between the Accreditation Criteria of Academic Curriculum in Malaysia and Singapore

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ABSTRACT

Washington Accord is a multi-sidelong understanding between bodies in charge of accreditation or acknowledgement of tertiary-level building capabilities inside their purviews who have worked by and large to help the portability of expert specialists. The conduct of Engineering Programmes in Malaysia, Singapore, who are also the signatories of the Washington Accord, is bounded by the accreditation of the local accreditation bodies, namely Engineering Accreditation Council (EAC) in Malaysia and Engineering Accreditation Board (EAB) in Singapore. In both countries, they are also foreign universities in the countries, which, in addition to the accreditation by the local accreditation bodies, they are also subjected to the accreditation bodies, including Institute of Mechanical Engineering (IMechE) for UK universities conducting Mechanical Engineering in the region, and Engineers Australia (EA) for Australian Universities having offshore campus in the region. This paper investigates the similitudes and contrasts in the accreditation methods of insight of the certifying bodies to the offer of the engineering programmes in the region focusing on the criteria for Programme Educational Objectives, Programme Outcomes and Academic Curriculums.

Keywords: Engineering Programmes, Accreditation, EAC, EAB





Introduction

The obtainment of a recognised engineering degree is important to ensure that one works legally as an engineer in his/her country or internationally. With the increase in the Institution of Higher Learning (IHL), or some refer to as Higher Education Institutions (HEI), it is important to ensure that one obtains an engineering degree that is accredited and recognised in other countries. The accreditation of engineering programmes can be traced as far back as 87 years ago, where the Accreditation Board for Engineering and Technology (ABET) and its predecessor, the Engineers' Council for Professional Development (EPCD), was established to be responsible for the education, accreditation, regulation and professional development of engineering professionals and undergraduates in the United States (ABET, n.d.).

In the 1980's, it is observed that the accreditation criteria has been evolved to be more prescriptive, impeding the creation of an innovative programme that reflects changing practical requirements, hence, ABET developed the revised criteria which are called as Engineering Criteria 2000 (EC2000) that stressing on the learning outcomes, assessment and continuous improvement rather than detailed description of curriculum, (Prados, et al., 2005). Following such development, ABET performed a three-year study on the readiness of engineering graduates following the implementation of EC2000 as compare to the pre-EC2000 era. The encouraging results of the study led to the evolvements of various agreements among the signatory countries where they have the mutual agreement of the individual processes, policies, criteria and requirements of awarding accreditation to the engineering undergraduate programme are substantially equivalent to each other. With this, Washington Accord was first established in 1989 with six foundation signatory organisations from Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States, (Washington Accord, 2019). This is then followed by other signatories including (IEA, 2019)

Washington Accord (1989): recognition of educational qualifications for professional engineers; *Sydney Accord* (2001): recognition of educational qualifications for engineering technologists; *Dublin Accord* (2002): recognition of educational qualifications for engineering technicians; *Engineers Mobility Forum* (1997): now the *International Professional Engineers Agreement*; *APEC Engineer Agreement* (2000); and

Engineering Technologist Mobility Forum (2003): now the International Engineering Technologist Agreement.

The signatories of Washington Accord grows from six in the initial stage to 20 today, where Singapore (represented by Institution of Engineers Singapore) and Malaysia (represented by Board of Engineers Malaysia) joined the signatories in years 2006 and 2009, respectively. These two engineering professional bodies are responsible to ensure that the engineering programmes that are run in these countries are accredited based on the graduate attributes stipulated by the Washington Accord. Currently, there are a total of 54 universities offer accredited undergraduate engineering programmes in Malaysia (EAC, 2018), while the number is six in the case of Singapore, (IES, 2019).

This paper investigates the similitudes and contrasts in the accreditation methods of insight of the certifying bodies to the offer of the engineering programmes in the region focusing on the analyses of programme educational objectives and the programme outcomes.

Engineering Accreditation Council (EAC), Malaysia



Malaysia became the 13th signatory of the Washing Accord, with the representation of the Board of Engineers Malaysia (BEM), (IEA, 2019). Under such accord, qualification accredited or recognised are also recognised by each signatory for being substantially at the same quality of their accredited or recognised qualifications. Under such signatory, the Engineering Accreditation Council (EAC) has been established to ensure Malaysia's accredited engineering programmes are substantially equivalent to engineering degrees offered by other signatories.

All engineering programmes in Malaysia is governed by the Engineering Accreditation Council (EAC), a designated body by the Board of Engineers Malaysia (BEM) as the main perceived authorizing body for engineering degrees programmes offered in Malaysia. EAC comprises of partners, including five to six representatives from BEM and the Institution of Engineers Malaysia (IEM), respectively, three to four members from Industry Employers, and one representative from the Public Service Department (JPA) and Malaysian Qualification Agency (MQA), respectively, (EAC, 2019).

Since 2000, with its mission of "*To be a leading accreditation body in ensuring quality engineering education*" (EAC, 2019), EAC has been providing leadership and quality assurance in engineering higher education for the 190 programmes at 26 Institutions of Higher Learning (IHL) in Malaysia.

To ensure that the IHL conducts the engineering degree programmes according to the requirements by the Washington Accord, EAC has been producing the Engineering Programme Accreditation Manual for the reference of IHL so that they will be able to understand the minimum requirements by the accreditation council, which, this manual is updated every five years, (EAC, 2007), (EAC, 2012), (EAC, 2017). The manual assists in facilitating IHLs to meet the minimum standard stipulated for the accreditation of the engineering programmes and the manual also outlines the elements in the engineering curriculum to ensure a Continual Quality Improvement (CQI) culture in the spirit of Outcome-Based Education (OBE) (EAC, 2017).

Engineering Accreditation Board (EAB), Singapore

Similar to BEM in Malaysia, Institution of Engineers, Singapore (IES) represents Singapore in the Washington Accord signatories, which was obtained in 2006. The Engineering Accreditation Board (EAB) is then set up as a body to accredit engineering programmes that are delivered and awarded in Singapore (IES, 2019).

EAB is set up to implement the accreditation policy of the council and formulate guidelines and procedures for accreditation. They deal with the evaluation teams by appointing the members of the evaluation team and review the report given by the team before deciding on whether accreditation should be granted. They also deal with IHLs to receive and respond to any complaints and appeals regarding the accreditation process, (IES, 2011).

EAB comprises of up to 10 members from among IES membership, and the relevant government agencies, non-government organisations, industry and business community, three members from Professional Engineers Board, Singapore, one member from Association of Consulting Engineers, Singapore, one member from National University of Singapore, one member from Nanyang Technological University and up to three members from other universities with engineering programmes.



EAB publishes accreditation manual for IHLs' references in the accreditation process. And the manual, as of author's knowledge, consists of two recent versions, which was published in 2011 and 2018, (IES, 2011) (IES, 2018).

Comparison Between EAB and EAC

Accreditation Board Composition and Policies

The membership of EAB is said to be of a more variety compared with EAC, where EAB engages professionals from the engineering related boards and agencies, as well as representatives from both public and private universities in the country. On the other hand, EAC is mainly consisting of members of the engineering related boards and agencies.

The maximum accreditation period granted for an Engineering degree programme in Malaysia is six years, although the conditions may vary, which, according to the manual (EAC, 2017), the duration of the accredited programme ranges from

Full accreditation for six years.

Any amount of the years that are less than six years.

Defer accreditation, where the IHL will need to fulfil conditions that are stipulated by EAC. Following such fulfilment, IHL will then need to re-submit the documentation within a year and schedule a second-panel visit to the IHL.

Decline accreditation and the IHL will not be able to apply for accreditation within the next one year.

On the other hand, for the case in Singapore, it is stipulated in the accreditation manual (IES, 2011),

"Accreditation of a programme will normally be granted for a specific term of up to a maximum of five years. If there is uncertainty as to the status, nature or future of the programme, or some weaknesses exist which calls for a review at a shorter interval, accreditation may be granted for a shorter term of less than five years."

The accreditation in Malaysia, with maximum of six years, is said to be of the maximum duration among the engineering programme providers in Malaysia and Singapore, where the accreditation is given by Institution of Engineers Singapore (IES, 2019), Institution of Mechanical Engineers, UK (IMechE, 2019) and Engineers Australia (EA, 2011) gives the maximum of 5 years of accreditation to the engineering programmes running in the countries. Looking at the complication and tediousness of the documentation preparation of the engineering programmes, a maximum accreditation of six years is, of course, said to be a better consideration towards the institutions.

Accreditation Criteria

EAC looks into seven accreditation criteria, while EAB looks into 11 accreditation criteria. Both accreditation criteria are presented in Table 1.

 Table 1: Accreditation Criteria stipulated by Engineering Accreditation Council, EAC, Malaysia, and

 Engineering Accreditation Board, Singapore, EAB.



EAC (EAC, 2017)	EAB (IES, 2018)					
Programme Educational Objectives (PEOs)	Mission and Programme Educational Objectives					
	(PEOs)					
Programme Outcomes (POs)	Student Learning Outcomes					
Academic Curriculum	Curriculum and Teaching-Learning Processes					
Students	Students					
Academic and Support Staff	Faculty Members					
Facilities	Facilities and Learning Environment					
Quality Management Systems	Institutional Support and Financial Resources					
	Governance and Continuous Quality					
	Improvement					
	Interaction between Educational Institution and					
	Industry					
	Research and Development					
	Specific Programme Criteria					
	Annual					

Programme Outcomes (POs) and Academic Curriculum

Both EAB and EAC outlined the programme outcomes based on the graduate attributes defined in the Washington Accord, (Washington Accord, 2019), which are

- Engineering knowledge
- Problem analysis
- Design/development of solutions
- Investigation
- Modern tool usage
- The engineer and Society
- Environment and sustainability
- Ethics
- Individual and teamwork
- Communication
- Project management and finance
- Life-long learning

Depends on the IHL's Vision and Missions, the engineering programmes may have its Programme Outcomes that are in line with the Institution's direction. In such a case, the IHL will have to produce a mapping to ensure that these outcomes not only agree with the institution's direction but also address the graduate attributes of the Washington Accord. Figure 1 shows an example of the mapping of the institution's Programme Outcomes to the EAC Programme Outcomes from the University Tun Hussien Onn, Malaysia, (Taib, et al., 2017)



	Program Outcomes (EAC)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011	PO12
Programme Learning Outcomes (PLOs)	Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modem Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Communication	Individual and Team Work	Life Long Learning	Project management and Finance
PLO1	\checkmark											
PLO2					✓							
PLO3									\checkmark			
PLO4				\checkmark								
PLO5										\checkmark		
PLO6											✓	
PLO7			Марр	ed to M	inistry o	Higher	Educati	on (MOI	HE) Req	uirement		
PLO8								✓				
PLO9												\checkmark
PLO10			\checkmark									
PLO11		1										
PLO12							1					
PLO13						√						

Figure 1: Mapping of the Institution's Mechanical Engineering Degree Pramme Outcomes and the Programme Outcomes outlines by EAC, (Taib, et al., 2017).

In the case of Singapore, at the School of Electrical and Electronic Engineering, Nanyang Technological University, the Programme Outcomes are taken from the Graduate Attributes of the Washington Accord with minor rephrase works, (NTU, 2012). With this, there are no mapping works needed and it is also made known that the Programme Outcomes is definitely in line with the direction that is drawn by the Washington Accord.

The academic curriculum and curricular design, as outlined in both manuals, mentioned that the engineering programme should cover a good range of essential engineering components or the core courses and non-technical courses in the programme, and appropriate choices of teaching and learning (delivery) and assessment methods.

(EAC, 2017) requires that an engineering programme must consist of at least 135 "SLT credits" – which is the Student Learning Time credits as outlined by Malaysian Qualification Framework (Malaysian Qualifications Framework, 2018). Such minimum credit hours, although not specifically specified in the EAB Manual (IES, 2019), the institution adopted the different credit calculation system, which is equivalent to that practice in Malaysia.

A normal 4-year undergraduate programme in the Nanyang Technological University (NTU, 2012) requires completion of 140 Academic Units (AU), which includes of 102 AU for core courses and 38 AU for General Educational Requirements. In Malaysia, take University Malaya for example (Universiti Malaya, 2017), the total credit required to complete an undergraduate engineering programme is 142 credits, consists of 101 credits for core courses and 41 credits for elective courses and university courses.

For the case in Universiti Malaya, the credit is catered towards the guidelines based on the Engineering Accreditation Manual. It is mentioned that one credit is equivalent to 40 student learning time (SLT) in a semester. The hours of teaching and student learning activities may be varied depending on the directions and policies of the university. However, generally, the university will still be having at least one hour of face-to-face contact with students per week.

The documentation from NTU defines that one AU is equivalent to 1 hour of lecture in a 13-week semester system. There is no clear definition of the student learning hours stated in the documentation.



With the general guideline based on the Department of Education, United States (e-CFR, 2019), "One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester...", one AU can be claimed to be as one lecture hour plus two student learning hours, which is equivalent to three hours of teaching and learning. In a 13-week system, this is then made equivalent to 39 hours of teaching and learning.

The comparison of the fulfilment of teaching and learning hours for both countries are said to be similar, where both universities in Malaysia and Singapore conduct a total of 5680 hours and 5460 hours of teaching and learning in order for an engineering degree to be awarded by the university. Such a comparison is summarised in Table 2.

Table 2: comparison of teaching and learning hours for the engineering courses in Malaysia(Universiti Malaya) and Singapore (Nanyang Technological University)

	Malaysia	Singapore			
Unit of measurement	Credit	Academic Unit (AU)			
	1 credit = 40 Student Learning	1 AU = 1 lecture hour + 2			
	Time (SLT)	student hours (as defined by (e-			
		CFR, 2019)			
Total units required per	142	140			
programme					
Total hours of teaching and	5680	5460			
learning					

Under the Washington Accord, the signatory countries are expected to design the engineering programme based on the graduate attributes stipulated and develop outcome-based accreditation criteria for use by their respective jurisdictions (Washington Accord, 2019). In light of this, outcome-based education has been made a very important component to be observed and executed in the running of engineering programmes.

In ensuring the Outcome-Based Education (OBE) component is addressed appropriately, both Malaysia and Singapore have been adopting the various approach in ensuring the component is executed in the respective institutions.

The component of OBE is mentioned in the EAB manual provides greater freedom in the execution of OBE to the IHLs in Singapore, where it was stated that the institutions would need to demonstrate appropriate assessment and evaluation mechanisms is put in place to evaluate the achievement of student learning outcomes. In other words, the institutions have the options to adopt various strategies to evaluate if their students and document the evidence of how the assessment set has successfully helped students to attain the stipulated learning outcomes.

On the contrary, in Malaysia, the OBE has been given greater emphasis, especially the measurement of the attainment of the programme outcomes in a more quantitative manner. In particular, it is mentioned in the EAC manual (EAC, 2017), that

"The assessment to evaluate the degree of the achievement of the POs of the programme shall be done and its level of attainment recorded."



Based on this, IHLs are expected to perform the measurement of the achievement of POs of the programme and are expected to take this a part of the criteria in the curriculum review. On one hand, this may seem to be a good approach to helping IHLs to improve the quality of courses that are conducted in the programme. However, there is no standardised measurement tool that is made official and accepted by the IHLs. As a result, each IHL design their own method of measurement of the outcome attainments, for example, direct measurements using the average marks of each assessment in accordance to the course learning outcomes and using simple spreadsheet calculations, as adopted by (Mat Tahir, et al., 2013), (Rahim, et al., 2010) and (Koh & Chong, 2015). There are also other IHLs who uses the computational approaches, including the development of special software in the analysis of such learning outcome attainments, (Idris, et al., 2017).

In addition to the authors mentioned above, inclusive or other authors available in the literature review such as (Abidin, et al., 2009), (Mokhtar, et al., 2016) and (Mohayidin, et al., 2008), these authors did not explain explicitly on the effectiveness or impact of such implementation towards the development of the programmes but mainly stressing that the measurement is mandatory in the conduct of the engineering programmes, and sharing on how the measurements are to be carried out in the institution.

Furthermore, these measurements are down to individual student's learning outcomes, which, in the author's point of view, is far too detailed in terms of the works involved. Unlike countries such as the United States, Australia or Taiwan, Malaysian and Singaporean universities do not equip with Office of Institution Research. Under such conditions, if the faculty would need to perform the measurement of programme outcome attainment of the individual student, this would need to be done by the faculty administrative staff, or even the faculty members. This, in fact, would seem to be an additional workload for the academics, who have been already drenched with the teaching, research and other administrative duties. Ideally, if such measurement is mandatory, for best results, the measurement is to be done by a full-time institutional research staff, who have more knowledge and experience of quantitative and qualitative analyses of data, to provide a more accurate analysis of the Student Learning Outcome attainment.

Conclusion

This paper presented the background of the accreditation bodies and process of Malaysia and Singapore, which are conducted by the Engineering Accreditation Council, EAC, in Malaysia and the Engineering Accreditation Board, EAB, in Singapore. The programme educational objectives, programme outcomes and academic curriculum are designed based on the graduate attributes outlined in the Washington Accord, to ensure that the status of signatories of both countries is secured and maintained.

Despite the similarities of the layout of the programme educational objectives and programme outcomes, the execution of the Outcome-Based Education in both countries varied with the different definition of the provision of evidence on how this is demonstrated in both countries. Singapore adopts a more general approach to view the general attainment of the student learning outcomes on the basis of the course, while Malaysia is practising a more microscopic methodology in measuring the individual student's attainment of learning outcomes.



While both approaches produce graduates that meet the graduate attributes of the Washington Accord, it is said that the Malaysian approach may be further improved with the adoption of Office of Institutional Research to make sure that the quantitative and qualitative analyses are conducted at a more effective manner.

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1_Paper102

Factors Affecting Research Productivity of Lecturers in Economic Universities in Vietnam

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ABSTRACT

This study aims to explore the impact of extrinsic motivations, intrinsic motivations and barriers on research productivity of lecturers in economic universities in Vietnam. Research methods include questionnaire surveys and the use of multivariate data analysis (Cronbach Alpha test, Correlation analysis, confirmatory factor analysis and Regression). The data analysis results from 327 lecturers revealed that research productivity was affected by research passion, scholarly pursuits, infrastructural barriers, language and informatics skills and gender. The results gave some implications for authorities and university to improve research productivity.

Keywords: Research Productivity, Extrinsic Motivation, Intrinsic Motivation, Research Barriers







Introduction

Scientific research is the central mission of every university. It is one of the factors that distinguish a university from a vocational school. Research productivity, therefore, become a significant criteria in the measurement of university rankings (THE, QS, Shanghai Traffic ...). Research productivity (quality and volume) usually weights from 20% to 60% of the measurement, vary from rankings to rankings. Hence, if a university wants successful internationalization and get into top university ranking system, it has to invest in research activities.

Despite the fact that research of Vietnamese economic universities has had honorable contribution to the national industrialization and modernization, there is certain limitation on research activities in economic universities in Vietnam. The number of world-class publications is quite modest, the quality of research is not so good enough (high-ranking journal, citations, international awards) and the great dependence on foreign researchers in international research cooperation projects. There are various reasons for these above limitations, such as: (i) the low quality of human resources; (ii) the lack of research culture and research pressure; (iii) research funding is inadequate; (iv) lack of cooperation with international colleagues and the industrial world; (v) little funding for this activity.

Thus, this research was designed to examine the impact of motivational factors, barrier factors and conditional factors on research productivity of lecturers in economic universities in Vietnam by integrated Vietnamese and international criteria of research productivity measurement.

Literature review

Scientific research

Scientific research refers to activities of discovering, detecting and understanding nature, laws of things, natural phenomena, societies and thinking, seeking innovative solutions for application in practice (Science and Technology law, 2013). The most common characteristics of sciencetific research is the discovery of nature, laws of things that haven't been found. The two main objectives of scientific research are understanding and improving the world, which are represented through specific functions: description, explanation, prediction and creation.

According to circular 22/2011/TT-BGDĐT dated May 30th 2011 of the Ministry of Education and Training, participating science and technology activities is one of the main mission of universities. Scientific research is one of the most effective solutions to improve the quality of training at the university level. This activity is increasingly concerned and renewed both in content and form, contributing to innovating teaching, learning methods, promoting the positive, proactive and creative nature of lecturers, as well as, students, in approaching and increasing knowledge.

Research productivity

Research productivity reflects the outputs (volume and quality) of research activity of both organizations and individuals participating in research activity. Research productivity associates with the history of scientometrics, which was defined for the first time in early 1970s by Nalimov (1971). According to Nalimov (1971), scientometrics is developing "the quantitative methods of the research on the development of science as an informational process". It is considered as the study of the quantitative aspects of science and technology seen as a process of communication. Some of the main topic in research productivity measurement includes ways to measure research quality and impacts, citations, mapping scientific fields and the use of indicator in research policy and management. There are several types of research metrics, including:



Bibliometrics is "the application of mathematical and statistical methods for books and other communication media" (Pritchard, 1969). This was the initial research field of research productivity measurement that focused on reviewing published books and published publications in general.

Informetrics is the application of mathematical methods to the investigation of information science objects (Nacke, 1979). Informetrics was mentioned in 1970s, including all types of scientific information, regardless of their forms and origins (Bar-Ilan, 2008; Egghe & Rousseau, 1990; Egghe & Rousseau, 1988; Wilson, 1999).

Webometrics is the study of quantitative aspect of the construction and use of information resources, technologies on the whole internet (website of the universities, institutes) on the approach of bibliometrics and informetrics (Björneborn & Ingwersen, 2004, p. 1217; Thelwall & Vaughan, 2004; Thelwall, Vaughan, & Björneborn, 2005). This metric focuses mainly on website analysis as a date source for scientific measurement.

Almetrics is a form of research measurement that attempt to capture research impact through nontraditional means (Priem, 2014), it is also known as Scientometrics 2.0. These metrics replace journal citations by impacts on social media such as: views, downloads, like on blog, Twitter, Mendelay... through the survey and evaluation of the searches. This is also a scientific assessment base on the information technology advances.

In summary, there are several methods to measure research productivity which depend on data sources and approaches. Due to limited data sources of research productivity in Vietnam, in this research, metrics of research productivity is contructed from available sources only, which are research output from both direct (participating in research projects, writing research books, publications in scientific journals and scientific conferences) and indirect research activities (instructor of Masters students, PhD students....)

Factors affecting research activities

Extrinsic motivations

Financial rewards, which are the symbol of success, the encouragement, the motivation, and the reflection of work productivity of an individual and is the root of anxiety reduction. Applied in productivity evaluation, rewarded researchers are productive employees and vice versa (James, 2011). In 2005, Hosoi found that setting up difficult and specific objectives make people work more effectively than hasten them to try their best. The usual strategies for financial motivation are productivity related payment and promotion. Human motivation is then driven by rewards and getting financial rewards (Rowley, 1996). According to Brewer (1990), 42 deans responded in his survey that merit reward systems can really increase the research productivity. In the survey of Creamer in 1995, 90.7% said that there are several types of merit reward systems in universities affected the salary of the department. In addition, 59.1% of the deans believed that the existence of a reward system based on contributions could increase the department's research productivity.

In management, promotion is one of the motivational factors of rewarding system in encouraging employees. Some scholars believe that promotion could create motivation for research productivity. In 1985, Fox suggested that higher education institutions could influence lecturers' behavior through the ingenious entanglement of promotion mechanisms. In 1990, Lai also considered promotion as an effective way to encourage staff to practice research. In Ruscio's interview study (1987), a faculty respondent commented about research publications: "Half to three quarters of what I read, if I asked myself why this was written, the answer normally is promotion". Some scholars (Yining et al., 2006) believed that promotion enhanced research productivity, and the number of publications reflect the academic advancement opportunities.

From the point of view of reinforcement theory, in 1980, Cooper and Burger thought that, as a reward, promotion had the greatest impact when it depended on work productivity; as an enhanced schedule, the introduction and elimination of promotion rewards affect the publication rate and shape of the



production possibility frontier. According to the survey of Tien and Blackburn, the expected publication rate will remain at a low level during the early period of the gap between the two ranks because no promotion was given during that time. At the end of a period of rank, the closer the promotion period is, the higher the publishing rate. Tien and Blackburn agreed that the promotion mechanism will be considered a fixed reinforcement schedule because the aspirations of university officials will not be strengthened until a certain period of time has passed.

Intrinsic motivations

Finkelstein (1984) concludes that published articles would not stop at the level of professors when promotion opportunities no longer existed. Therefore, the intrinsic motivation played a clear role in encouraging publication rather than extrinsic motivations.

Some researchers still kept the opinion that lecturers publishing were not for extrinsic rewards but because they enjoy the research process (McKeachie, 1982). McKeachie argued that lecturers entered colleges and universities because of the enjoyment they received from scholarly pursuits, from encouragement of colleagues and students, and satisfaction when appreciated and respect by others. In Blackmore and Kandido (2011), they concluded that intrinsic motivations had a great meaning; it involved the opportunity to learn and practice skills, enriching understanding. Another important aspect is the interest in being independent, self-reliant at work and wanting to achieve something with your own efforts.

However, according to Brewer (1990), non-financial rewards are considered as less significant and less frequently used than other factor in motivating lecturers to take part in research activities. There for 3 intrinsic motivation factors (research passion, scholarly pursuits, self-control and social contribution) which has only been drawn in prior research will be examined in this research.

Research model and hypotheses:

Hypotheses about the impact of extrinsic motivations on scientific research productivity of lecturers

H1a: Promotion and financial incentives have a positive impact on research productivity of lecturers

H1b: Academic prestige has a positive impact on research productivity of lecturers

Hypotheses about the impact of intrinsic motivations on scientific research productivity of lecturers

H2a: Research passion has a positive impact on research productivity of lecturers

H2b: Scholarly pursuits has a positive impact on research productivity of lecturers

H2c: Self-control and social contribution has a positive impact on research productivity of lecturers

Hypotheses about the impact of barriers on scientific research productivity of lecturers

H3a: Infrastructural barrier has a negative impact on research productivity of lecturers

H3b: Lack of skill and experience has a negative impact on research productivity of lecturers.

H3c: Age and lack of support has a negative impact on research productivity of lecturers

H3d: Teaching volume and scientific culture has a negative impact on research productivity of lecturers



Hypotheses about the impact of conditional characteristics on scientific research productivity of lecturers

H4a: Academic level has an impact on research productivity of lecturers

H4b: Gender has an impact on research productivity of lecturers

H4c: Academic title has an impact on research productivity of lecturers

H4d: Foreign language skill, informatics skill has impact on research productivity of lecturers



Scale development

The scale of research productivity refers to the guideline from the State Council for Professor title Vietnam and opinions from 10 experts who are prestigious researchers that have joined in ministrylevel research projects and/or above and have published in both national and international journals. 5/10 experts have studied and do international research activities, understand research ethics and scientometrics. The final scale includes 5 main following criteria: (1) Principle investigators or co-investigators of research projects at state level/ ministry level and equivelence/ university level and equivelence; (2) Chief authors or co-authors of textbool or monographs; (3) Authors of research paper published on academic journals (national, ISI/ Scopus and non-ISI/Scopus) and/or in national/international conferences; (4) Instructors of student research groups; (5) Instructors of Masters students/ PhD students. The conversion points for each criteria are in appendix 1.

The scale of research motivations and barriers were referred to prior international research (Lam, 2011; Renko, 2013). The items were adjusted to fit Vietnamese context through a qualitative interview with



10 researchers about assessment criteria. The back translation method was applied to assure the meaning of adjusted items did not change. The final scale for survey is as followed. The research results was affected by 36 items adapted from the study by Lam (2011); Renko (2013). Detail in appendix 2.

Data collection and research sample

The target population was lecturers who are teaching at economics universities in Vietnam. However, due to limited resources, it's imposible to survey the who target population. Therefore, this study uses sampling method which are stratified sampling (based on geographical areas – North and South) and cluster sampling. There are more universities in the north than in the south so the study chose 3 big universities in the north and 2 big universities in the south for survey.

400 questionaires were spread out, 327 of those were valid for analysis. This sample size is good according to the sampling rule of Comrey & Lee (1992). The sample description are in the table 3.1:

Criteria		Frequency	Percentage (%)
/	University of Economics Ho Chi Minh City	69	21.1
Universities	National Economics University	117	35.8
	University of Finance and Accountancy	46	14.1
	Thuongmai University	62	19.0
	University of Economics and Law	33	10.1
Condon	Male	201	61.5
Genders	Female	126	38.5
A 1	Master's degree	169	51.7
Academic level	Doctoral degree	158	48.3
	None	255	78.0
Academic title	Associate Professor	48	14.7
	Professor	24	7.3
	Assistant professor	5	1.6
L.1. T:41.	Lecturer	192	59.8
Job 11tle	Senior lecturer	58	18.1
	Professor	66	20.6
	Professor who holds concurrent offices	35	26.7
Position	Head/ Deputy of department	46	35.1
rosition	Dean/ Deputy-Dean	41	31.3
	The board of Education	9	6.9
	Less than 10 years	93	29.2
F '	10-20 years	112	35.1
Experience	20 – 30 years	81	25.4
	More than 30 years	33	10.3

 Table 3.1: Descriptive Statistics

Note: Some categorical variables have missing because respondents did not need to answer those question, therefore, the total frequency of some variable were not equal to 327.



Data analysis:

The SPSS version 22 and AMOS were used. Research methods include questionnaire surveys and use descriptive statistics, factor analysis multivariate data analysis (Cronbach Alpha test, Correlation analysis, Confirmatory factor analysis and Regression). There are 3 main constructs with complicate concepts, including: (1) extrinsic motivations; (2) intrinsic motivations and (3) barriers of research activities. We used confirmatory factor analysis to reconfirm latent concepts in each construct that was inherited from prior studies.

Results

Confirmatory factor analysis

The results of CFA proved that the constructs of the models is fit with actual data: Chi –square/df = 4.282 < 5, CFI = 0.851, IFI = 0.853 lón hon 0.85 và RMSEA = 0.073 < 0.08. The tighter criteria are Chi-square/df <3 and CFI, TLI > 0.9 (Hair et al., 2010; Kline, 2015, Hooper et al., 2008). However, in some particular research case, we can loosen the criteria by choosing Chi-square/df < 5 with big sample and CFI, IFI >0.85. This research is new in Vietnam so it may not be highly robust, hence, it is suitable to choose these criteria.



Figure 4.1: Results of confirmatory factor analysis of items (standardized)

The analysis results showed that, after deleting items with small factor loadings, the factor loadings of the remained items were all greater than 0.5 and had convergent validity. Correlation coefficients between items were all less than 0.9, which meant that items had discriminant validity.

Composite reliability and average variance extracted of instruments which have more than two items were greater than 0.7 and 0.5. This indicated that all instruments in the model were reliable. The instruments which has 2 items has rather big correlation coefficients (r > 0.3), which meant they were also reliable.



Correlation

Before using regression analysis to examine the impact of factors (extrinsic motivations, intrinsic motivations, barriers and characteristics) to research productivity, we use correlation analysis to examine the relationship between constructs in the model. The correlation analysis results showed that research productivity (TongdiemNC) correlated to all analyzed item, except FIN – promotion and financial incentives.

Regression & hypothesis test

Regression analysis by OLS and Enter methods was used to test the proposed hypotheses. The results are as followed (Table 4.1):

Independent variables		Unstandardized index		Standardized index		p	Heteroskedasticity statistics
		Beta	S.D	Beta		value	VIF
	Intercept	3.978	7.165		.555	.579	
	FIN	.012	1.251	.000	.010	.992	1.303
	ACA	4.469	2.047	.125	2.183	.030	2.896
	PASS	4.929	1.998	.125	2.467	.014	2.274
	SCI	-5.664	2.333	154	-2.427	.016	3.553
	AUT	.233	1.684	.007	.139	.890	2.224
	INF	-3.265	1.257	103	-2.597	.010	1.389
	EXP	904	1.233	031	733	.464	1.595
	SUP	001	1.280	.000	001	.999	1.390
	TEC	135	1.591	003	085	.933	1.470
	ReTA	428	1.956	009	219	.827	1.498
	Resoft	2.285	1.596	.057	1.432	.153	1.385
	RePGS	32.531	2.113	.610	15.397	.000	1.391
	ReGS	8.518	3.748	.088	2.273	.024	1.342
	Resex	5.073	1.457	.125	3.482	.001	1.147
	ReAge	.357	1.827	.009	.195	.845	1.805
	TSThs	8.945	1.862	.222	4.803	.000	1.899
p-	value (F) = 0.0	00					
R	$^{2} = 0.702$						
a.	Dependent var	iable: Re	search pro	ductivity			

Table 4.1: Results of Regression Analysis of Factors Affecting Research Productivity

The analysis results showed that F-test had p-value = 0.000, which is less than 0.05, which proved that independent variables have impacts on dependent variables, in another word, the analysis model is fit. R2 = 0.702 indicated that independent variables explained 70% of the changes of dependent variable, or 70% of research productivity depended on intrinsic motivations, extrinsic motivation, barriers and researchers' characteristics.

The results also showed that academic prestige (ACA), research passion (PASS), scholarly pursuits (SCI) affect research productivity, and the lack of infrastructures (INF) has a negative impact on



research productivity. In researchers' characteristics, gender, academic level, academic title affects research productivity. Hence, we accepted H1b, H2a, H3a, H4a, H4b, H4c and rejected H1a, H2b, H2c, H3b, H3c, H3d, H4d

Discussion and implications

After analysis, six out of seven proposed hypotheses were accepted. The only extrinsic motivation that affects research productivity was academic prestige. No significant impact of promotion and financial incentives on research productivity was found. However, this does not mean that promotion and financial incentives that do not affect the research productivity of teachers in practice. Instead, it might be a must-have factor for lecturers. In fact, research activity is one of the criteria for promotion. However, after have the position, research is no longer a faculty priority or the financial benefits from research are no longer attractive to teachers.

Two out of three aspects of intrinsic motivations affected research productivity, which are research passion, scholarly pursuits (p-value < 0.05); we found no significant impact of social contribution on research productivity (p-value > 0.05). However, unexpectedly, scholarly pursuits are negatively related to research productivity.

On the aspect of barriers, only lack of facility negatively affected research productivity. There is no significant impact of other barrier factors in the model on research productivity. It is the same in the case of foreign language skill and informatic skill. However, other characteristic factors were found be related to research productivity.

From the research results, we found the impact of motivational factors, barrier and characteristics on research productivity at different level. From all the research data analysis above, we can draw a persona of a productive researcher:

A research who have high research scores (including scores from research project, books, journals, guiding) has the following characteristics: (1) highly evaluate academic prestige; (2) has high motivation of scholarly pursuits; (3) teaching; (4) male; (5) has doctoral degree; (6) is associate professor. The research analysis indicated the above 6 factors have significant impact on research productivity. Additionally, not all factors of extrinsic motivation, intrinsic motivation, barrier and researchers' characteristics affected research productivity.

Those analysis results also imply that the authorities and universities should support academic freedom, university independence; improve scientific funding and management mechanism; socialize research funding, renovate international cooperation model in scientific research field and promote global integration.

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SEAAIR2019 THEME 2.

Advanced Technology and IR Application: Social Networks, Data

Warehousing and Data Collection





The Characteristic of Academic Excellence Award Winners in National Taipei University of Business

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ABSTRACT

This study intended to investigate the characteristic of those academic excellence award winners in National Taipei University of Business (NTUB). The academic excellence awards were issued for the first three students according to their academic performance ranking in each class. Data collection includes awarded students' personal information and their academic results of each semester since 2011. Statistical analysis was applied to present data. The descriptive results show the distribution of those awarded student in relations to their original location, admission approaches, and graduated high/vocational schools. Students from northern Taiwan are the majority to be awarded. For admission approaches, students taking Admission by Recommendation and Screening, and Admission by Registration and Placement are the majority of award winners. Further, data mining approaches was applied to cluster the data of serial winners with two methods: CART and Neural Network Analysis to demonstrate the common characteristics. Both approaches showed a consistence of classification result that students' academic performance undoubtedly is the most common characteristic of all serial winners. Following, the graduated high/vocational schools and the previous major of award winners in graduated high/vocational school are also key factors. The results suggested that the previous education, including graduated schools and previous major, could affect students' further academic performance, and also suggested that further investigation needs to consider both environmental and personal factors.

Keywords: Institutional Research, Academic Excellence Award, Data Mining Approaches







Background

Award as Positive Reinforcement

Academic excellence awards have been established in many education facilities and viewed as a positive reinforcement as social learning theory has highlighted the application of modeling for promoting one's learning motivation (Bandura, 1986). For the award receivers, the reinforcement is not only the results of one's effort but also the source of self-efficacy for further academic performance; for observers, the awards may stand as an attractive reinforcement of studying hard. Though social learning theory has argued that the learning behavior may appear without the appearance of awards; instead, learning may occur when the message of award appears in the social context. National Taipei University of Business has established such social context and given academic excellence awards for the first three students in academic performance ranking in each class every semester, and the awarded lists were also posted to encourage all students and reward winners. However, who those winners are and what factors might have boosted their academic performance are still unclear. This study is to explore the characteristics of those winners in NTU

Students' Learning Outcome

The construction of one's education quality is complex, so is the factors contributing to one's academic performance (Chang, 2004). Previous researches have indicated various factors contributing to students' academic performance including both environmental and personal forces (Fejgin, 1995; Liu, 2009; Lu, 2011; McKenzie & Schweitzer, 2001; Mushtaq & Khan, 2012; Vermunt, 2005). The environmental forces contain the cultural background in the society and family's social capital such as the belief, school environment, parents' economic status and education backgrounds, and family composition, while personal forces contains students' personal factor such as intelligence, age, ethic group, learning strategy and behavior, and prior knowledge. Both forces are acknowledged to be influential for one's academic performance, and it is worth investigating what forces are predictive for one's academic excellence winning.

Methodology

The study collected academic excellence awards winners' personal information and their academic results of each semester in National Taipei University of Business. Students registered in 2011 and 2012 were selected, and their completed four year academic records as well as their personal information were collected. There were 757 winners set for analysis, and some of the winners have won the awards more than once; thus the number of awards was bigger than the sample size. Both descriptive statistic and data mining techniques were applied to present data. Descriptive statistic used to present the winners' ranking and their personal information. Further, serial winning occurrence were calculated to present the frequencies. There were sixty serial winners for cluster analysis. Data mining approaches were suggested to cluster data (Huang, 2007; Kurt, Ture, & Kurum, 2008; Razi & Athappilly, 2005) and CART and Neural Network Analysis were commonly applied to categorize the data to generate the predictive factors of the serial winners. The CART approach is one of the classifying data technique, which is set for predict and analyze data. Neural Networks approach mimics the information process theory of neural network, which is also frequently applied in predicting and classifying data. The accuracy of both techniques is also presented.

Result

Residence Areas of the Award Winners

The descriptive results showed distribution of the personal information of award winners. Firstly, the residence areas of the award winners were shown in Table 1. Though there was no significance, the majority of award winners were mostly from the northern area of Taiwan (63.0%) followed by the central area (18.1%). Surprisingly that there were some international students having received the awards which contrasted to previous survey on international students' low academic results. In details, the distribution for the first place, second place, and third place were similar to the total winners. The result echoed to the distribution of the whole population that the majority of the students are from the northern area.

	Academ	ic Performance			
	1(n/%)	2(n/%)	3(n/%)	Summary (n/%)	P/value
Northern	137 (63.7%)	173 (65.8%)	167 (59.9%)	477 (63.0%)	
Central	35 (16.3%)	47 (17.9%)	55 (19.7%)	137 (18.1%)	
Southern	29 (13.5%)	28 (10.6%)	43 (15.4%)	100 (13.2%)	
East	11 (5.1%)	11 (4.2%)	14 (5.0%)	36 (4.8%)	0.404
International	3 (1.4%)	4 (1.5%)	0 (0.0%)	7 (0.9%)	
Summary	215 (100.0%)	263 (100.0%)	279 (100.0%)	757 (100.0%)	

Table 4 Residence Areas of the Award Winners

Admission Approaches of the Award Winners

Table 2 showed the distribution of the admission approaches of the award winners. Though there was no significance, the majority of award winners (44.0%) were mostly from Admission by Recommendation and Screening (ARS) followed by the 38.7% taking Admission by Registration and Placement (ARP) which are two main admission approaches to entering the university. Also, the distribution for the first place, second place, and third place were similar to the all winners.

	5///				
	1 (n/%)	2 (n/%)	3 (n/%)	Summary	P/value
				(n/%)	
ARP	78 (36.3%)	103 (39.2%)	112 (40.1%)	293 (38.7%)	
ARS	91 (42.3%)	119 (45.2%)	123 (44.1%)	333 (44.0%)	
Multi-Star Project	21 (9.8%)	24 (9.1%)	25 (9.0%)	70 (9.2%)	
Applying Admission	13 (6.0%)	10 (3.8%)	8 (2.9%)	31 (4.1%)	
Special	5 (2.3%)	4 (1.5%)	8 (2.9%)	17 (2.2%)	
Achievement					0.468
Sport Achievement	0 (0.0%)	1 (0.4%)	1 (0.4%)	2 (0.3%)	
Transferring Exam	4 (1.9%)	0 (0.0%)	1 (0.4%)	5 (0.7%)	
Oversea Enrollment	2 (0.9%)	2 (0.8%)	1 (0.4%)	5 (0.7%)	
Others	1 (0.5%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	
Summary	215 (100.0%)	263 (100.0%)	279 (100.0%)	757 (100.0%)	

Table 5 Admission Approaches of the Award Winners

Graduated High/Vocational Schools of the Award Winners

Table 3 showed the distribution of the graduated high/vocational schools of the award winners. Though



there was no significance, there were 22.9% of winners graduated from Shilin High School (SLHS), followed by 10.1% graduated from Zhong Li commercial high school (CLVSC) which both are located in northern area and have signed strategic alliances with NTUB. Also, the distribution for the first place, second place, and third place were similar to the all winners.

	Academ	ic Performance			
	1 (n/%)	2 (n/%)	3 (n/%)	Summary (n/%)	P/value
SLHS	39 (26.2%)	47 (24.6%)	39 (19.0%)	125 (22.9%)	
CLVSC	16 (10.7%)	20 (10.5%)	19 (9.3%)	55 (10.1%)	
SSVS	12 (8.1%)	14 (7.3%)	22 (10.7%)	48 (8.8%)	
TNCVS	12 (8.1%)	11 (5.8%)	21 (10.2%)	44 (8.1%)	
CHSC	9 (6.0%)	12 (6.3%)	15 (7.3%)	36 (6.6%)	0.996
HCCVS	6 (4.0%)	12 (6.3%)	17 (8.3%)	35 (6.4%)	
SCVS	9 (6.0%)	12 (6.3%)	6 (2.9%)	27 (5.0%)	
KSVCS	7 (4.7%)	8 (4.2%)	10 (4.9%)	25 (4.6%)	
FYVS	6 (4.0%)	8 (4.2%)	7 (3.4%)	21 (3.9%)	
TCHCVS	5 (3.4%)	7 (3.7%)	7 (3.4%)	19 (3.5%)	× 1
YKVS	3 (2.0%)	6 (3.1%)	8 (3.9%)	17 (3.1%)	
CPSHS	4 (2.7%)	7 (3.7%)	5 (2.4%)	16 (2.9%)	
KLCIVS	4 (2.7%)	7 (3.7%)	4 (2.0%)	15 (2.8%)	
TSVS	5 (3.4%)	5 (2.6%)	5 (2.4%)	15 (2.8%)	
ILVS	4 (2.7%)	4 (2.1%)	5 (2.4%)	13 (2.4%)	
HLBH	3 (2.0%)	4 (2.1%)	6 (2.9%)	13 (2.4%)	
NTVS	3 (2.0%)	4 (2.1%)	4 (2.0%)	11 (2.0%)	
YLHCVS	2 (1.3%)	3 (1.6%)	5 (2.4%)	10 (1.8%)	
Summary	149 (100.0%)	191 (100.0%)	205 (100.0%)	545 (100.0%)	

Table 6 Graduated High/Vocational Schools of the Award Winners

Data Mining Approaches

Furthermore, data mining approaches were applied to cluster the data of awards winners with two methods: CART and Neural Network Analysis. Both techniques were proved to be appropriate methods to trim data and to conclude the commonalities of samples. Firstly, the numbers of serial winning showed that most serial winning were occurred between the second semester of Year1 and the first semester of Year 2, saying that there were 21 students won academic excellence awards in the second semester in Year 1 and then won again in the first semester in Year 2. The performance in Year 1 is assumed to be important that students who performed well are more likely to win academic excellence awards in later semesters.

Table 7	' the	Serial	Winners	and Their	Wining	Semesters
1 0010 1	nic	5011011	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Semesters

S1	Y1-2	Y1-2	Y2-1	Y1-2	Y2-1	Y3-1
S2	Y2-1	Y3-1	Y3-1	Y4-1	Y3-2	Y3-2
Ν	21	19	19	10	10	10



With the data of serial winners, the data mining approaches were conducted to show the commonalities of those winners. The result of CART (Figure 1) showed that the study students' academic performance, the graduated high/vocational schools, and previous major in graduated high/vocational school were three main characteristics of those serial winners. Undoubtedly, academic performance is the absolute key to academic excellence awards. The graduated schools and previous major were also factors for award winning. Those graduated high/vocational schools might have strengthened their students with academic studies, and previous knowledge are also known to be the foundation of university education.



Further, the Neural Network Analysis also presented similar results (Figure 2) that students' academic performance, the graduated high/vocational schools, and previous major in graduated high/vocational school were three main characteristics of those award winners.



Figure 3 Neural Network Analysis Results of Serial Winners

Both techniques have consistent results of factors contributing to serial winning, but to calculate the accuracy of both techniques, the accuracy of CART is higher than the accuracy of Neural Network Analysis (Table5), knowing that CART can be served as a better predictor.



model	CART			Neural N	Network	Analysis
		True	False		True	False
	True	13	8	True	8	13
	False	1	38	False	4	35
accuracy	85%				72%	

 Table 8 the Accuracy of CART and Neural Network Analysis

The three common factors of the serial winner were discussed further. First, academic is obviously the key factor accommodating the performance ranking, since those winners obtained very good results in studies. Secondly, many serial winners were from the same high/vocational schools: Shilin High School (SLHS), and Zhong Li commercial high school (CLVSC) which were also the two main graduated schools for all winners. Thirdly, the previous majors, including Business Affairs, International Trade, and Data Processing, were influential for their later performance in university, explaining that previous education also helped them perform well in university.

Discussion and implication

The result presented the characteristics of academic excellence awards winners and predictive factors of serial winners. Firstly, the distribution of residence area, admission approaches and graduated high/vocational schools were to demonstrate the common characteristics of award winners. For admission approaches, though it appears that the major winners were taking Admission by Recommendation and Screening (ARS) and Admission by Registration and Placement (ARP), both approaches were also the most common approaches for all students. It shall be calculated to see the proportion of winners in each approach to see which approach may recruit students with academic potential. Further, data mining approaches were applied to show that academic performance, graduated high/vocational schools, and previous major were predictive keys to those serial winners, and year 1 was suggested to be an important period that students do well in year 1, and they might continuously do well later. Though the all winners and serial winner showed some similar results on graduated high/vocational schools, but there was still difference between two groups. The distribution of residence area appears to be obvious for all winners but not a key factor for serial winners. It is common in Taiwan to see students commute to some schools far away from home to pursue better education. Additionally, those high/vocational schools with good academic reputation have some expertise that they can offer advanced or professional training which may promote those students' further performance in university; thus, graduated schools played an influential factor in their academic excellence award winning. Furthermore, the previous major stood apparently in the serial winners but not appear among all winners. Previous major and background knowledge of certain subjects are surely related to students' academic performance, as they would continuously win the academic excellence awards; but many winners without previous major still make their effort to win the prize. Previous knowledge and hardworking are both recognized to be important for students' academic success. However, other personal factors were not addressed in the study, such as one's personality, learning behaviors, and cognition strategies. It is inaccurate to assume previous major stands the only reason for one's academic performance which is known as a complex achievement of multiple reasons as literature suggested.

The implications of current study including providing information for relevant stake holders such as university admission office, curriculum design, parents, and graduated schools.

Admission office and curriculum design may consider to provide some training courses for those who may not have resources, such as those who live in rural area or without background knowledge. For example, pre-session courses set for those without background knowledge or transferring from other schools/departments. Further, the result may send back for parents and those high/vocational schools, not only to appreciate their education but also to encourage future potential students which can be one of the admission strategies. Besides, other personal information from other authorities, such as extracurricular activities, qualification obtained, attendance rate, and courses taking, shall be taken into



account to modify the model for further analysis. With further detailed information integrated in, the model is assumed to be sound and completed in future prediction,

Moreover, the study contains a few research limitations. Firstly, the samples could only represent for certain period of time and cannot infer to the students in other school years. Furthermore, previous researches have indicated that one's academic performance can be affected by many personal and external environmental, and those factors were not brought into discussion in this study and need further investigation.

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The Causal Relationship Toward Internet Use: Influencing of Loneliness, Social Support, Time Spend on the Internet and Internet Gratification of Thai-University Students

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ABSTRACT

Thai-government is undertaking long-term digital plan to maximize the use of digital technologies to all Thais, especially adolescents and school-aged children. Students with digitally competent be able to make full and creative use of technology for their learning both in and outside the classroom. Therefore, the present study aimed to investigate relationship of student's factors including; loneliness, social support, time spend on the Internet and Internet gratification to the student's level of Internet use. The participants were 394 Thai-university students whose age ranges from 18-25 years old. Data collection was conducted through a questionnaire form, including UCLA Loneliness Scale (Version 3), Multidimensional Scale of Perceived Social Support (MSPSS), Internet Gratification Scale and Thai-Internet Dependency Scale (T-IDS). Pearson's correlation and the path analysis were used to examine non-causal and causal relationships among variables. The findings showed positive significant correlation among student's factors and Internet use (loneliness and internet use had r=.105, p-value <.05; social support and internet use had r=.144, p-value <.01; time spend on the Internet and internet use had r=.193, p-value <.01; while Internet gratification and internet use had r=0.22, p-value >.05). The causal relationship in path model indicated that the level of Internet use was directly influenced by loneliness, social support and time spend on the Internet; meanwhile it was also indirectly influenced through mediate of the Internet gratification, representing by good fit indexes (chi-square /df < 3; GFI \ge 0.90; AGFI \ge 0.90; NFI \ge 0.90; CFI \ge 0.90; RMSEA < 0.05). Finally, an implication on using the Internet to maximize effective learning and teaching as well as to suggest education-relevant policy are further discussed.

Keywords: Internet Use, Loneliness, Social Support, Time Spend on the Internet, Internet Gratification





Introduction

Digital Thailand is the country's policy in taking full and creative advantage of digital technology to develop infrastructure, innovation, data capability, human capital, and other resources. The policy generates five guiding principles; one of the important principle is to develop human capital for the digital era. This principle emphasizes on digital literacy to all Thais so that they are able to have necessary skills to access and use digital information effectively, ethically and functionally. Implementing the principle of digital literacy into the action plan requires several resources, for example, (1) upgrading digital community center to provide public access to digital services and online learning, (2) providing Massive Open Online Courses (MOOCs) for the public both in education and non-education sectors and (3) training digital literacy to people of all groups. This action plan ensures equal access to digital technology, create of local digital content and knowledge resources as well as provide education opportunities with digital technology. (Ministry of Information and Communication Technology, 2015; Ministry of Digital Economy and Society, 2016). School-age children and adolescents are the main target for driving digital literacy's policy since they are motivated to functionally use digital resources to enhance their 21st century talents e.g. creative thinking, critical thinking, problem solving, communicating and collaborating skills (Pheeraphan, 2013). Students with digitally competent be able to make full and creative use of technology for supporting their education both in and outside the classroom as well as preparation for their future career (Techataweewan & Prasertsin, 2018).

Although digital literacy policy is undertaking to maximize the use of digital technologies to support student's education and life, on the other hand there are relatively large literature exists on negative consequences due to Internet overuse (Ko et al, 2009; Pontes et al, 2015; Varma & Cheasakul, 2016). Recently, the World Health Organization (WHO) and the American Psychiatry Association (APA) announces the clinical diagnostic criteria related to a loss of control over the Internet use i.e. the Internet Gaming Disorder that negatively impact to personal health and function (American Psychiatric Association, 2013). Meanwhile, the study of Brand et al (2014b) proposed a theoretical framework of Interaction of Person-Affect-Cognition-Execution (I-PACE). This model provides an explanation of the process underlying the development and repetitive use of the Internet. It is divided into three parts: (1) functional/healthy Internet use when the Internet is used as the tool to fulfill personal goals and needs in everyday life, (2) Generalized Internet Addiction (GIA) when the Internet is use excessively with any general purposes and (3) Specific Internet Addiction (SIA) when the Internet is use excessively with the certain online applications or sites. For this study, the model of functional/ healthy Internet use is emphasized. This model composes of interactions between predisposing factors (e.g. person's core characteristics, personality aspects, and social cognitions of loneliness and perceived social support) and mediating factors (e.g. coping strategy, Internet use expectancies and Internet gratification). The combination of those factors results in a form of internet use (Brand et al, 2014a; 2014b; 2016).

Besides than the I-PACE model as described above, the empirical findings mostly confirm theoretical assumptions of the I-PACE. The significant correlation between loneliness, perceived social support and Internet use have been revealed, mostly in terms of its direct effect to the Internet use. (Ozsaker et al, 2015; Çevik & Yıldız, 2017; Zhang et al, 2018). However, a study of He et al. (2014) provided a model that social support directly lead to depression of Internet addicts, on the other hand it can indirectly affect depression through the mediation of loneliness. The correlation between times spend online that potentially lead to excessive Internet use have been suggested (Tonioni et al, 2012; Laconi et al, 2015) however the indirect effect from depression to time spent using the Internet through problematic Internet use was also significant (Tokunaga & Rains, 2010). The gratification to the Internet identified in this study was suggested by Brand et al (2014b) and Roy (2008) to gain information on individual motivations of why users were attracted to the Internet, what they did on the Internet, and how they satisfied to the Internet.

For this reason, all empirical suggested variables are tied together to depict the hypothesized model in this study. This hypothesized model is further tested of its fit with a given data from Thai's university



students. The result provides a model that describing the causal relationship between the Internet use and its influencing factors, especially in aspect of psychosocial condition of the university students. Implication is directly to teacher and practitioner so that they are able to create flexible learning classroom tailoring with student's ability and condition. Moreover, this causal model is benefit for policymaker to gain foundation information in driving a policy relevant to digital literacy and 21st century skills of the students, complying with the Digital Thailand national policy.

Statement of the problem

Based on prior findings, this study ties those variables together as the hypothesized model. The research problem was to test whether there were causal and non-causal relationship among those suggested variable? In particular, it was to test whether the hypothesized model fit well with a given data of Thai's sample? In this case, the hypothesized model consisted of predisposing factors from Thai's university students (i.e. loneliness, social support and time spend on the Internet), through Internet gratification as the mediating factor, and in turn result to the student's level of Internet use.

Objective of the study

The study aimed to investigate the relationship among factors of loneliness, social support, time spend on the Internet, Internet gratification and the level of Internet use. The main objective was to test causal relationship among those variable as depicted in the hypothesized path model.

Hypothesized path model

The hypothesized path model was translated from a theoretical framework in order to test its fit with a given data set. For this study, the model indicated the direct and indirect pathways from factors of the students to their level of Internet use as depicted in **Figure 1**.





Methodology

Participants and procedure

A total of 420 university students who enrolled in the Faculty of Education, Ramkhamhaeng University were recruited into the study, under the inclusion criteria of (1) be 18-25 years old, (2) able to access to the Internet and (3) willing to take part without coercion. These criteria were set up to ensure that the participant represented homogeneity and reduced effect of confounding factors. All participant were asked to complete a package of questionnaire through online format which took approximately 20-30 minute. Twenty-six of them provided incomplete data and terminated, while 394 (101 males and 293 females with an average ages of 22.44, SD = 1.65 years old) remained for the final analysis. The number of sample size in this study (n=394) met an assumption regarding sample size adequacy for the path analysis since it should be at least 300 or should be at least five times as many observations as the



number of variables to be analyzed, and a more acceptable sample size would be 10:1 ratio (10 observations per variable: Hair et al, 2014). Ethical consideration have been informed to participants prior to data collection, they received a full explanation of the study's purpose and procedure as well as assured of their anonymity and confidentiality. Any of whom who were inconvenient, they were able to withdraw from the study without any concerns.

Measures

The online questionnaire composed of five measures including (1) questionnaire on demographic of the students and their routine of the Internet use, (2) UCLA Loneliness Scale (Version 3), (3) Multidimensional Scale of Perceived Social Support (MSPSS), (4) Internet Gratification Scale and (5) Thai-Internet Dependency Scale (T-IDS) as followed;

Questionnaire on demographic of the students and their routine of the Internet use

The questionnaire was designed to gathering data on demographic of the students and their routine of the Internet use. It included questions about student's gender, age, age at start using the Internet, duration of Internet use a day and the most favorite online activities.

UCLA Loneliness Scale (Version 3)

The UCLA Loneliness Scale was firstly developed by Russell (1978 cited in Ozsaker et al, 2015), secondly revised in 1980 and thirdly revised in 1996. The scale is designed to measure general levels of loneliness with 20 items and 4-point Likert type. Possible score ranges from 20-80, a higher score represents higher levels of loneliness. For this study, the scale was tested of its internal consistency with 30 Thai-university students prior to data collection, the result showed internal consistency with Cronbach's Alpha = .730 (representing relatively high reliability).

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS Scale was developed by Zimet et al (1988 cited in Ozsaker et al, 2015) to measure levels of social support perception from three support sources i.e. family, peer and significant others. It consists of 12 items with 5-point Likert type. Possible score ranges from 12-60, a higher score represents higher levels of perceived social support. For this study, the scale was tested of its internal consistency with 30 Thai-university students prior to data collection, the result showed internal consistency with Cronbach's Alpha = .871 (representing high reliability).

Internet Gratification Scale

The scale was designed by the researcher in accordance with the recent literature (Roy, 2008; Casale & Fioravanti, 2015; Brand et al, 2016) to measure levels of Internet gratification in six dimensions i.e. self-development, wide exposure, user-friendly, relaxation, academic opportunity and global exchange. The scale consists of 23 items with 5-point Likert type. Possible score ranges from 23-115, a higher score represents higher levels of gratification to the Internet. For this study, the scale was tested of its internal consistency with 30 Thai-university students prior to data collection, the result showed internal consistency with Cronbach's Alpha = .984 (representing very high reliability).

Thai-Internet Dependency Scale (T-IDS)

The T-IDS Scale was developed by Wiesessathorn (2017) to measure levels of Internet use in Thaiadolescents. The original item is generated in Thai language, consists of 32 items with 4-point Likert type. The scale includes six components i.e. (1) excessive and uncontrollable use, (2) withdrawal and tolerance, (3) loss of function and relationship, (4) relieving negative mood, (5) physical symptoms,



and (6) other relevant behaviors. Possible score ranges from 32-128, a higher score represents higher dependency to the Internet and potentially Internet addiction. The scale has been proven of its validity, reliability as well as testing of its sensitivity, specificity and cut-off point, representing the quality and applicability of the scale in practice (Wiesessathorn, 2019). For this study, the scale was tested of its internal consistency with 30 Thai-university students prior to data collection, the result showed internal consistency with Cronbach's Alpha = .933 (representing very high reliability).

Data analysis

Statistical standard procedures were carried out in accordance with research objectives. The participant's demographic and general information were represented by *descriptive statistic* e.g. mean, standard deviation, frequency and percentile. The normality distribution of endogenous variables were presented by the value of *skewness*, *kurtosis* and were tested by *Shapiro-Wilk Test*. The non-causal relationships among variables were tested by *Pearson's Correlation*. The causal relationships representing the direct and indirect pathways from student's variables to their use of the Internet was tested by *Path analysis* with varieties of model fit indicators i.e. Chi-square test, Chi-square/df, GFI, AGFI, NFI, CFI and RMSEA.

Results

The results were presented in four parts as followed: (1) demographic of the participants and characteristic of their Internet use, (2) score on research variables i.e. loneliness, social support, internet gratification and internet use as well as testing of the normal distribution, (3) the non-causal relationship among research variables and (4) the causal relationship as the path model analysis.

Part 1: Participant's demographic and characteristic of the Internet use

A detailed description of demographic of the participants and their routine of the Internet use was presented in **Table 1**. A total of 394 university students (males = 101, females = 293) with an average age of 22.44 years old (average age for males = 21.93 years old, females =22.63 years old). The average age at start using the Internet was 12.99 years old while there were slightly differences for males and females (males = 12.30 years old, females =13.23 years old). Duration of Internet use a day was averagely 8.31 hours/day while for males = 7.78 hours/day, females = 8.49 hours/day. It seems that females spend slightly more time on online activities than males. The most favorite online activities for males were social media (87.1%), online entertainment activities (78.2 %) and online gaming (51.5 %) whereas the most favorite online activities for females were social media (82.5 %) and news update (22.5 %).

Variables	Male	Female	Total
variables	(n=101)	(n=293)	(n=394)
Age (mean, SD)	21.91 (1.68)	22.63 (1.61)	22.44 (1.65)
Age at start using the Internet (mean, SD)	12.30 (3.18)	13.23 (2.63)	12.99 (2.81)
	Min=5,Max=18	Min=7,Max=19	Min=5,Max=19
Time using; hours/day (mean, SD)	7.78 (4.21)	8.49 (4.48)	8.31 (4.42)
	Min=1,Max=20	Min=1,Max=20	Min=1,Max=20
The most favorite online activities (f, %)			
Social media (e.g. Facebook, Instragram, Line)	88 (87.1 %)	270 (92.2 %)	358 (90.9%)
Online entertainment activities	79 (78.2 %)	236 (80.5 %)	315 (79.9%)
(e.g. watching movies, listening to music)			
Online gaming	52 (51.5%)	42 (14.3%)	94 (23.9%)
News update	19 (18.8 %)	66 (22.5 %)	85 (21.6%)
Search for academic information	19 (18.8 %)	57 (19.5 %)	76 (19.3%)
Search for general information (non-specific)	12 (11.9 %)	52 (17.7 %)	64 (16.2%)
Search for information of particular interest	23 (22.8 %)	35 (11.9 %)	58 (14.7%)
Read online novels/ cartoon	21 (20.8 %)	25 (8.5 %)	46 (11.7%)

Table 1: Participant's demographic and their characteristic of the Internet use



Variables	Male (n=101)	Female (n=293)	Total (n=394)
Keep track of celebrities	2 (2.0 %)	41 (14.0 %)	43 (10.9%)
e-commerce	7 (6.9 %)	30 (10.2 %)	37 (9.4%)
Email update	11 (10.9 %)	11 (3.8 %)	22 (5.6%)
Others	6 (5.9 %)	10 (3.4 %)	16 (4.1%)

Additional analysis on demographic characteristics to variables of interests was performed. Male and female students showed significantly differences on Internet use and loneliness (t= 2.468, p-value = .015; t= 2.932, p-value = .004), but slightly differences on duration of use, social support perception and Internet gratification (t= -1.426, p-value = .156; t= -.395, p-value = .693; t= .623, p-value = .533, respectively). The correlation of age and age at a start using the Internet were performed with variables of interests, but only few significant correlations among those variables were found i.e. negatively significant correlation of student's age and social support perception (r_{xy} = -.118, p-value = .020), as well as negatively significant correlations of student's age at a start using the Internet with duration of use, social support perception and Internet gratification (r_{xy} = -.130, p-value = .010; r_{xy} = -.117, p-value = .021; r_{xy} = -.198, p-value < .001, respectively), while there was no significant relationship between the other variables.

Part 2: Score on research variables and normality testing

The minimum score, maximum score, mean, standard deviation, skewness and kurtosis for each research variables as well as the statistical testing of normal distribution were presented in **Table 2**. The value of skewness and kurtosis with in normal limits (+1 to -1) along with the result of Shapiro-Wilk test that shows non-significant (p-value >.05) indicates a normality distribution (Hair et al, 2014). Based on the obtained information from the participants, all the research variables were normality. Although the variable of 'loneliness' seem not to meet the criteria but it was the exogenous variable, not the endogenous variable in the model. Hence, this was acceptable for analyzing the path model.

Table 2. Score on research variables and then normanly testing							
Research variables	Min	Max	Mean (SD)	Skewness	Kurtosis	S-W	p-value
Time using (hours/day)	1	20	8.31 (4.42)	.760	025	.947	.137
Loneliness	21	80	45.15 (9.06)	101	1.582	.834	<.001**
			(moderate level)				
Social support perception	12	60	41.82 (8.73)	549	.888	.982	.865
			(moderate level)				
Internet gratification	23	115	87.38 (17.67)	681	.320	.939	.085
			(relatively high)				
Internet use	32	128	52.13 (24.35)	.451	.176	.926	.062
			(moderate level)	//			

Table 2: Score on research variables and their normality testing

* p-value < .05, ** p-value < .01; S-W = Shapiro-Wilk value

Part 3: Non-causal relationship among research variables

The non-causal relationship among research variables, including loneliness, social support, time spend on the Internet, Internet gratification and Internet use were presented in **Table 3**. The results of Pearson's correlation analysis found positive significant correlation among student's factors and Internet use i.e. time spend on the Internet and Internet use had r=.193, p-value <.01, loneliness and Internet use had r=.105, p-value <.05, social support and Internet use had r=.144, p-value <.01 while Internet gratification and Internet use had r=0.22, p-value >.05. Furthermore, there were positive significant correlation among student's factors themselves i.e. loneliness and Internet gratification had r=.211, pvalue <.01, social support and Internet gratification had r=.473, p-value <.01. Besides, none of the bivariate correlation was greater than .9, indicating the absence of multicolinearity.



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Variables	Time using	Loneliness	Social Support	Gratification	InternetUse			
Time using (hours/day)	1							
Loneliness	004	1						
Social support	.070	.079	1					
Internet gratification	.043	.211**	.473**	1				
Internet use	.193**	.105*	.144**	.022	1			
	A 4							

 Table 3: Non-causal relationship among research variables

* p-value < .05, ** p-value < .01

Part 4: Causal relationship as the path model analysis

Path analysis is a multivariate statistical technique that allows simultaneous estimation of multiple equation in order to identify the causal relationship among variables. This technique confirms whether a hypothesized model fits a given data set. Prior to test with the path analysis, several basic assumptions need to be proved, including (1) the variables are measured on an interval scale, (2) the relations among the variables in the model are linear and causal, (3) the path model needs an one-way causal flow, and (4) absence of high multicolinearity, typically the bivariate correlation should not over .9 (Hair et al, 2014). Based on the obtained information from the participants, all the basic assumptions met the criteria. The hypothesized model tested of its fit with a given data set. As the first trial, the model was just-identified meaning that it had a zero degree of freedom (df) and did not have enough information to estimate the model parameters as showed in **Figure 2**. This model had been modified by removing non-significant pathways one at a time until it turned to be the finalized model.



Figure 2: The hypothesized path model; a just-identified model

The finalized path model representing pathways of student's factors to their Internet use showed in **Figure 3**. After removing one non-significant pathway between times spend on the Internet and Internet gratification, this model was overidentification. It meant that there was more than enough information in the data to estimate the model parameters, therefore the model was able to explain interrelationship among those variables. This causal path model indicated that student's use of the Internet was directly and indirectly influenced by factors of loneliness, social support, time spend on the Internet and Internet gratification, representing by fit indexes i.e. chi-square/df = .073, p-value = .786; GFI = .877; AGFI = .816; NFI=1.00; CFI = 1.00; RMSEA < 0.05. Comparable to the good model fit criteria i.e. chi-square /df < 3, p-value > .05; GFI ≥ 0.90; AGFI ≥ 0.90; NFI ≥ 0.90; CFI ≥ 0.90; RMSEA < 0.05 (Hu & Bentler, 1999 cited in Tokunaga & Rains, 2010), this finalized model was considered to be a good fit model.





Figure 3: The finalized path model; an overidentified model (Values in the model were the unstandardized coefficients)

The finalized model revealed its significant pathways, direct effect, indirect effect and total effect as summarized in **Table 4**. There were four direct pathways from student's factor to Internet use while there were two indirect pathways mediated by Internet gratification to Internet use. Most of the direct and indirect pathways were significant regression estimates except the pathway between Internet gratification and Internet use (standardized total effect = -.087; p-value = .125). Meanwhile, the relationship among exogenous variables in the model were not statistical significance relationship (loneliness and social support had r=.079, p-value =0.120; social support and time spend on the Internet had r = .004, p-value = .932).

Variables	Direct effect		Indirect effect		Total effect		n valua
	Unstd.	Std.	Unstd.	Std.	Unstd.	Std.	p-value
Gratification < Social support	.929	.459			.929	.459	<.001**
Gratification < Loneliness	.342	.175			.342	.175	<.001**
Internet use < Gratification	119	087			119	087	.125
Internet use < Loneliness	.299	.111	041	015	.258	.096	.026*
Internet use < Social support	.455	.163	111	040	.344	.123	.003**
Internet use < Time using	1.022	.185			1.022	.185	<.001**
Loneliness <> Social support				The Contraction of the Contracti	6.206	.079	.120
Social support <> Time using					2.694	.070	.166
Loneliness <> Time using					172	004	.932

* p-value < .05, ** p-value < .01; Unstd. = Unstandardized coefficients, Std. = Standardized coefficients

The finalized path model (see **Figure 3**) and its estimation (See **Table 4**) concluded that the level of Internet use in Thai's university student was directly influenced by student's factors of loneliness, social support and time spend on the Internet; meanwhile it was also indirectly influenced through mediate of the Internet gratification as well.

Discussion

The findings on causal relationship by the path analysis (see **Figure 3** and **Table 4**) and non-causal relationship by Pearson's correlation (see **Table 3**) provided the similar findings that the student's factors and the internet use were significantly correlated. The Internet use was directly influenced by loneliness, social support and time spend on the Internet meanwhile it was indirectly influenced through mediate of the Internet gratification. Therefore, the discuss is divided into three parts: (1) the direct



effect between loneliness, social support and time spend on the Internet to the Internet use, (2) the indirect effect of the Internet use through mediate of the Internet gratification and (3) characteristic of the Internet use in Thai's university students.

Firstly, the level of Internet use in Thai's university students was directly affected by factors of loneliness, social support and time spend on the Internet in a positive direction, but not significantly affected by the Internet gratification (see Figure 3 and Table 3, 4). This findings was consistent with previous conclusions, even most of those studies have been focused on the problematic Internet use rather than functional Internet use. A study of Ozsaker et al (2015) affirmed that there was a positive correlation between loneliness, perceived social support and the problematic Internet use, indicating that the increase of loneliness and perceived social support, the increase of the undesirable Internet use behavior. Cevik & Yıldız (2017) revealed that loneliness, perceived social support (especially a support provided by significant others) significantly predicted Internet addiction. He et al. (2014) suggested that loneliness and lack of social support were significantly correlated with depression among Internet addicts in the undergraduate students. As well as the study in Thailand, Varma & Cheasakul (2016) assured the relationship among those variables in which lower levels of Internet use correlated with higher levels of social support and in turn, higher levels of social support correlated with the decrease of stress, anxiety and depression. Internet addiction also exhibited its indirect influence on depression through mediate of self-regulation in Thai's undergraduate students. In terms of time spend on the Internet, it seems that people who were likely to addicted to the internet, were more likely to make intense and frequent use (Tonioni et al, 2012; Ozsaker et al, 2015), especially when the Internet was used for some specific certain purposes such as online gaming or online chatting (Laconi et al, 2015).

Secondly, the level of Internet use in Thai's university students was indirectly affected through mediate of the Internet gratification. Although there were few studies focusing on internet gratification, this variable was suggested in the I-PACE theoretical model of Brand et al (2014b). The gratification to the Internet inferred the Internet as a tool to dealing with the personal goals and needs in everyday life. The Model of Brand et al (2014b) hypothesized that a specific individual characteristic increased the likelihood of gratification to the use of the Internet; a higher level of Internet gratification extended a level of Internet use. In accordance with the results of this study, gratification with the internet as a mediating variable can pass on an indirect relationship between factors of loneliness and social support to the use of the internet significantly. Meanwhile, Casale & Fioravanti (2015) classified the satisfying needs toward using such online activity as social networking sites into 3 reasons i.e. the needs for belongingness, the needs for self-presentation and the needs for assertiveness. Those underlying needs could be motivated the Internet use; on the other hand, the unmet needs lead to repeated use of the internet addiction.

Lastly, the characteristic of the Internet use in Thai's university students have been presented (see **Table 1**). Our participants reported that they first started using the Internet at 12.99 years old; the amount of time spend on the Internet per day was relatively high (averagely 8.31 hours/day); the top three most favorite online activities were social media, online entertainment activities and online gaming (for males)/ news update (for females). Unlike the findings of Teo et al (2017), the undergraduate students in Singapore reported the amount of time they spent on the Internet was in the moderate range (averagely 1-2 hours/day), representing less amount of internet usage compared to the Thai students. The top three Internet activities used were Internet chatting, social networking sites and academically related activities while Thai students used the internet for academic purposes occasionally. The study of Laconi et al (2015) provide additional information for the university students in France that most of them used the Internet within the normal range (averagely 19.8 hours/week or approximately 2.8 hours/day), similar to that found in Singapore students, but typically the Internet was used for recreational purposes.



The current study has some limitations. Firstly, it is importance to note that the results of this study do not classify the pattern of Internet use as a generalized or specific form; those different patterns may contribute to alternate pathways among variables in the path model. Secondly, the current findings revealed the relationship among student's factors to their use of the Internet while ignoring other relevant factors that existing in the I-PACE model of Brand et al (2014b), future study may test the influences of all those factors as the full model. Thirdly, in terms of generalizing the findings, future study may increase the number of samples as well as extend the results to other university students in Thailand. Lastly, the impact of demographic characteristics on the research relationship may additionally analyze. Future study may incorporate the relationship of demographic characteristics into the full model, for example, generate the causal model according to their gender, time to degree, academic major or GPA, then analyzing the data with Multiple Group-SEM (MG-SEM) to gain more complete information.

Conclusions

The finding of this study is congruence with the findings of others and a theoretical model of I-PACE. The use of the Internet in Thai's university students is directly and indirectly influenced by factors of loneliness, social support, time spend on the Internet and Internet gratification. Our participants preferred using the Internet when feeling of loneliness and seeking for social support, leading to the feeling of gratification when the Internet was able to fulfill their personal goals and needs; as a consequence, time spend on the Internet was more likely to extent the level of Internet use for Thai's students.

Implications

Implications for learning and educational purposes, the Internet provides opportunity to students not only for social connection and entertainment, but also for academic and scientific information purposes. Internet can be used as a tool to enable students to develop a deep learning competency in which they are able to use of skills such as analysis, synthesis, integration, and reflection for their learning both in and outside the classroom. To achieve these regard, teacher should generate supportive learning teaching methods of searching and questioning rather than simple memorization. Teacher may give assignments requiring the use of the Internet as a source, recommend their students to a variety of sources that suggest different approaches to the same topic and provide alternative information for them. For this reason, the internet can be an advanced learning tool for students that motivate them to learn actively and functionally. (Yilmaz & Orhana, 2010; Dogruer et al, 2011).

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Social Network Characteristics Related to the First-year Student Drop-out Rates

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ABSTRACT

Decreasing the drop-out rate of first-year students is an important issue in Institutional Research. The reasons that cause students to suspend their studies are various, ranging from family economics, aspiration and study interest, mental health to learning effectiveness. Behind these reasons, this study believes that an individual's social interaction on campus may be more critical. For the intention of establishing the strategic mechanism of effective counseling, this study examining the interaction between students and peers through the survey of student knowledge acquisition social network to investigate the social relations that affect students' drop-out rate. The subjects were three classes of freshmen selected from each of the three colleges of the university to collect their classroom social networks. The UCINET Social network analysis tool was used to measure each student's social network structure indicators and judge the core and periphery in their department class. The results verified that the drop-out students have smaller knowledge acquiring social network, cohere to intimate classmates, and locate at the periphery of the classroom networks for better university life and obtain a degree.

Keywords: Drop-out Rate, Social Network Analysis, Academic Achievement, Social Network Characteristics





Introduction

University administrators of Institutional Research are concerned about how to reduce suspensions and drop-outs of freshmen from universities. Whilst there is a long list of contributing factors such as family's finance, social, personal or environmental issues (Paura & Arhipova, 2014; Andreia, Teodorescub & Oanceac, 2011; Francisco, Marcelo & Rita, 2018, Belo & Oliveira, 2015), this study believes that the development of campus social networks can serve as a key support for students. Freshmen facing a new setting, new people and new things, need to know how to learn on their own. Havnes (2008) analyses the horizonal, in-between communication and indicates that peer-mediated learning occurs in the early days of college life. In addition to the curriculum, study requirements and assessment criteria, university students strive to participate in campus and social activities based on their experience and establish boundaries for themselves in the new world of knowledge and learning. The interaction with classmates, the learning potential inspired by peers, learning experience from the past and the present, and their plans for the future are all moving parts in tandem. The friendship established via the network of peers is the most important social network in university days (Hsieh-Hua Yang, Ching-Kuo Wei, Hung-Jen Yang, 2008).

Dewey (1963) and Vygotsky (1978) posit that learning is a process that can be promoted via social interactions. Engeström (1987) believes that learning is not about adapting to the world. Rather, it is a process of forming a new world. Bruner (1984) indicates that learning is embedded in continuous social activities practiced collectively. Social networks are a type of social capital. The efficient use of relationships and investment in relationships can boost the probability of success for an individual (Burt, 1992).

Therefore, if a freshman is unable to develop interactions with peers in the context of knowledge during the first year of campus life, he/she will not be able to establish boundaries in the new world of learning and knowledge. This makes it impossible to allow for changes in synchronization of past knowledge, current learning experience and future plans through learning potential of peers, in order to develop a journey of robust learning. In this instance, it is likely that they drop out or suspend from the university as a result of the influence and restrictions of external environments.

Many studies have been conducted during recent years on this type of informal networks. The social network analysis is applied to explore the relation between actors (Knoke & Yang, 2008). This paper reviews the social network data of the freshman classes in the school where the author worked as an academic affair of Institutional Research two years ago, in order to analyze the interactions of the students who suspended or dropped out from the university. It also refers to academic achievements and examines the characteristics of personal networks that influence the decisions of suspensions and drop-outs. The purpose is to identify effective supporting strategies for the reference of supervisors and teachers responsible for vocational and supplementary curriculum in the consultation centers. These efforts can help students to develop effective learning networks, enjoy successful college life, and acquire undergraduate degrees accordingly.

Theoretical background

Universities classroom can be considered a collective with a knowledge system. The perspectives of the collective are represented in the cognition and sociality contained in the classroom knowledge. Such tacit knowledge will be transformed into implicit knowledge via social interactions and experience sharing, and the implicit knowledge will be then transformed into explicit knowledge through dialogues and cooperation. This process requires skillsets in synthesis, classification, reconstruction and consolidation to construct new knowledge with existing and explicit knowledge or to transpire explicit knowledge into the cognition capability required for the creation of implicit knowledge by ways of reading, discussing and understanding (Nonaka 1994). This also requires social interactions and expressive capabilities (Nonaka and Konno 1998). Pascarella and Terenzini (2005) believe that the most influential peer interactions can reinforce the essence of formal curricula and extend it to outside the classroom. Scardamalia & Bereiter (2003) define the construction of knowledge as the values, thinking and continued development created through any possible means in a collective for the transcendence of



personal contributions and collective achievements of a shared culture.

In this context, learning time spent by the student requires more than assistance from teachers. Social interactions are an important stage for knowledge construction in the learning process. Learners are equipped with existing knowledge when they acquire new knowledge (Dewey 1963, Vygotsky1978) and social networks are an important resource for them to obtain knowledge. Knowing who has the knowledge and being able to connect to the knowledge owner is key to learning efficacy (McDermott, 1999; Cross *et al.*, 2001; Borgatti & Cross, 2003). Social networks are part of the resources for learning time.

Social network effects in knowledge sharing

The primary stage of knowledge acquisition is to know who has the knowledge and is able to connect to the knowledge owner (McDermott, 1999; Cross *et al.*, 2001; Borgatti & Cross, 2003). In other words, the pinpointing of experts is critical to the effectiveness of information searches (Lin & Chiou, 2008). In the century before the emergence of the Internet, Greenberg (1964) pointed out how easy an individual in the center of social networks can find others for discussions and how easy it is for others to locate him. Studies in the era of the Internet indicate that the more involved a person is online in group activities, the more he/she is moving forward the focal position (Bradner *et al.*, 1998). Lai and Wong (2002) posit that the participants at the heart of a group look proactive and able to efficiently communicate information.

From a different perspective, a person's social network represents his/her potential influence (Stefanone, & et.al. 2004). Scholars have long been referring to social networks in the research on information transactions and exchanges (Burt 1992), services and emotions (Degenne & Forse 1999). They also prove that work interactions are a predicator of the effectiveness of information searches (Cross et al 2001, Binder, et. al.2009), job seeking (Marsden & Hurlbert 1988), status establishment (Lin 2001) and knowledge sharing (Nahapiet & Ghosha 1998). There are a few features that connect information or affect the nature of the connections and outcomes. First of all, frequent contacts are always beneficial emotionally and mutually (Binder, et. al.2009). The network benefits for an individual can be calculated by deducting his connections with correspondents with the average connections that they have.

Social networks analysis in the classroom

Many scholars indicate that classmates provide resources and support. They bring in a positive influence on the academic achievements of an individual (Sacerdote, 2001; Zimmerman, 2003; Hole, Parker, & Rivenburg, 2005; Brunello et al., 2010). Daza (2016) examines the effect of social relations on the success of university students. The results suggest that students with high-quality relations exhibit better academic performances than those with low-quality connections. Those with a lower level of social support report a higher rate of deaths and diseases, particularly cardiovascular conditions (House, Landis, & Umberson, 1988; Uchino, 2006).

Many scholars explore the influence of social networks, academic results, and self-awareness on the psychological health of university students. The findings show that social networks affect academic achievements, self-awareness and mental health of college students (Hsueh-Hua Yang, Duan-Rung Chen, Lan Lee and Shan-Ru Ke, 2002; Sheu-Jen Huang, Min-Hwa Wang, Wen-Chi Hung and Chyi-In Wu, 2015; Jian-Hao Huang and Lan-Chin Hwu, 2015). Tzyy-Jiun Lung (2017) presents the graph of interpersonal relation networks of students in the investigation of the correlation between the scale and centrality of interpersonal connections of different types in the classroom and the academic performance of students. The study indicates no significant correlation between academic achievements and the interpersonal relations in classroom anchored on the completion of schoolwork and supported with emotions. However, there is a significant correlation between leisure-based and information-sharing centric interpersonal connections.

Studies suggest that the position of interpersonal networks in the classroom is relevant to the health of students. For instance, an isolated student in a senior high is more likely to be a smoker than a student in a small group (Yang et al. 2002). Hsueh-Hua Yang et al. (2008) find that friendship networks are critical to the formation of healthy behavior of university students. Friendship networks are built through meeting new friends via curriculum learning and student club activities. The interactions in the



friendship network do not only satisfy the psychological needs and a sense of belonging but also formulate healthy behaviour via mutual imitations.

Social network indicators and positions

Network size is a metric for the valuation of proximity or commonality of actors. A personal with a larger network is more likely to attract assistance and support from others or more likely to receive dependence from others in the network. It is also a measurement for influence and helps to understand the structure of such influence and the relation with decision-making models (Knoke, 2011; Knoke & Yang, 2008; Scott, 2013; Wasserman & Faust, 1994). The resource-based theory holds that a network is a mechanism for learning and resources sharing (Beamish & Kachra, 2004). Network size in the context of classroom networks represents the number of peers (Wei-Pin Li, 2012).

Network density is another fundamental indicator of network structure. It refers to the summation of all the actual relations an actor has in his/her social network as a percentage of the aggregate of all the possible relations. The higher the network density, the greater the frequency of resource exchanges and interactions on a given level of the social network in the overall structure, and the bigger the influence on the actors involved (Guang-Xu Wang, 2015). The above indicators, when applied to class networks, represent the ratio of pair-wise mutual elections. The higher the ratio, the greater the compatibility of class members (Wei-Pin Li, 2012).

Research method

Research subjects and methodology

The research subjects are the freshmen of one represented classroom of each college where the network data was collected two years ago as part of a project of institutional research. The purpose is to analyze the data of social networks in each classroom by using the UCINET software to measure the indicators of the social network structure and the score of core/periphery position for every student's networks. This combines with the supplement data of institutional research such as the academic results of core subjects for the two years of the sampled classroom and the list of the students who suspended or dropped out from the university. Regression analysis is performed on network indicators for correlation, to determine the social network characteristics that influence the suspension and drop-outs from university.

Social networks in the classroom

Freshmen's networks for knowledge acquisition and friends are extracted from the two network matrixes, i.e., knowledge contributions and lunch friends, according to the social network data in classroom collated from the previous project of institutional research. The network of knowledge contributions is formed via assistance extended to classmates (as provided by the sampled students). The network matrix is then transposed (i.e., change of direction for relations), in order to obtain the network matrix for the students who received the assistance. The network of lunch friends consists of the classmates with whom the sampled students often have lunch with. Similarly, the network of lunch friends is transposed to obtain the indicator for popular friends having lunch together.

It can be inferred by knowledge sharing as a benefit of social networks and the meanings of indicators that network size for the acquisition of knowledge for individual students is beneficial to learning effectiveness. Network density places constraint on the acquisition of learning resources affects learning effectiveness and increases the likelihood of suspensions and drop-outs. The smaller the network for knowledge acquisition or the network of lunch friends, or the more peripheral the networks are, the higher the probability of suspensions and drop-outs.

This paper develops the following research hypotheses:

H1: There is a positive correlation between learning effectiveness and network size of knowledge acquisition.

H2: There is a negative correlation between learning effectiveness and network density of knowledge acquisition.

H3: Network density of knowledge acquisition affects the probability of suspensions and drop-outs.


H4: Periphery of network position for knowledge acquisition affects the probability of suspensions and drop-outs.

Variable definitions

This paper defines the network matrix of knowledge acquisition as KS (knowledge support) and the network of lunch friends as LF (lunchmate friends). The symbol "KSsize" denotes the network size for knowledge acquisition obtained by an individual according to the characteristics of network structure. The symbol "Density" the network density of assistance in knowledge acquisition; "per" the periphery positon of the network for knowledge acquisition support; "LFsize" the network size of lunch friends; "LFden" the network density of lunch friends; "scores" the academic achievement of students; "drop" suspensions and drop-outs.

Research Results

Structure of class networks

The NetDraw tool of the UNINET software can present the structure of class networks and relative positions of suspended and dropped-out students. Each node indicates one student. The closer a node is to the center, the more connections a student receives assistance in knowledge acquisition. In the social network graphs of the three classes in Figure 1 (one class from College of Engineering, one from College of Management and one from College of Liberal Arts), the deep-colored dots represent suspended students or drop-outs. The label for each node is omitted to make the graphs neat and concise.

Figure 1 Structure of KS/LF Networks for Three Classes from Different Colleges







Characteristics of classroom networks

A QAP analysis is conducted on the network for assistance in knowledge acquisitions and the network of lunch friends for each classroom in order to derive the correlations of network structure as below. The two networks for the College of Management classroom exhibit a high correlation.

Table 1	QAP Anal	ysis of Two) Networks
	ESKS	LSKS	MSKS
ESLF	0.399**	$\cap e$	
LSLF		0.487**	
MSKS			0.653**
MSKS	Circle in	6 (1 - NI-(0.053**

school Size Drop(rate) KSSize Density per(rate) LFSize LFDen							LFDen
ES	70	15(21.42%)	4.8	77.20%	58(82.86%)	3.89	70.93%
LS	55	8(14.55%)	5.86	60.92%	41(74.55%)	9.98	56.10%
MS	56	14(24.56%)	4.13	69.39%	46(80.70%)	5.34	55.25%

Table 2 presents the descriptive statistics of the networks for the three represented classes. The rate of suspensions and drop-outs is approximately 20%. On average, each person has five to six nodes for his/her network for assistance in knowledge acquisition. The average density is higher with the network for assistance in knowledge acquisition than with the network of lunch friends. Four out of each five students are located at the periphery of networks. The network structures are depicted in Figure 1.

Table 3 shows the correlation analysis of academic achievement and network characteristics for the sampled three classes. The ranking is used to represent the academic results with number 1 to n (n depends on the classroom size) where the smaller number means the higher achievement. There is a negative correlation between the network size for knowledge acquisition assistance and the ranking of academic results. Also, there is a significant and positive correlation between academic results measured with rankings and network density. In other words, the lower the rankings (i.e., the larger the number of ranking represented the lower ranking), the higher the network density. There is a low correlation between academic rankings and periphery of network positions. There is no much correlation either between suspensions/drop-outs and periphery of network size for assistance in knowledge acquisition, but significantly and negatively correlated with the network size for assistance in knowledge acquisition. There is no significant correlation with the characteristics of the network of lunch friends.

Table 3 Correlation analysis: suspensions/drop-outs, academic achievements, and network

	characteristics						
	Ranking	drop	KSSize	Density	per	LFSize	
ranking							
drop	.474**						
KSSize	130	283**					
Density	.293**	.321**	536**				
per	008	.115	357**	.116			
LFSize	.020	031	.530**	179*	392**		
LFDen	$.185^{*}$.024	097	.353**	.098	315**	



Both network size and network density for assistance in knowledge acquisition and lunch friends serve as a predicator of the probability of suspensions and drop-outs. Network density boasts stronger predictability. However, academic rankings are the best predicator.

0	1	~ 1	
	Model1	Model2	Model3
KSSize	358***	128	103
Per	.059	.078	.086
LFSize	.182**	.120	.064
Density		.253***	.188**
LFDen		062	128*
Rank			425***
\mathbb{R}^2	0.102	.126	.288
Ajust R ²	.087	.101	.263

Table 4 Regression and	predictability	of suspensions	and drop-outs
0	1 2	1	1

Discussion

Social network analysis is a set of standards and methods to examine the relational structure and attributes of social networks. This paper uses the UCINET software to further exquine the social network data of the classrooms collected by projects of institutional research. The purpose is to identify whether the structural indicators of social networks for each student affects his/her probability of suspending from or leaving the university. Below are the research findings and implications.

Importance of social characteristics of knowledge acquisition networks

The structure graphs of class networks suggest that suspended and dropped-out students tend to be posited at the periphery positions. They also have smaller networks. Studies indicate that college learning can be enhanced via social interactions between classmates. Engeström (1987) posits that learning is not about adapting to the world. Rather, it is about connecting with the formation of a new world. Learning is the creation of social capital via continuous social activities practically embedded into a specific group. It boosts the probability of success for a person (Bruner 1984, Burt, 1992). A lack of stable interactions with peers during the first year of campus life will lead to frustrations in the new world of learning and knowledge. Unable to overcome academic challenges and cope with future changes via the potential aspired by learning with peers, these students are likely to give up education and choose to suspend or drop-out from the university due to external environmental influence and restrictions.

Network density is the ratio of the aggregate of all the actual relations owned by an actor divided by the total number of possible relations in the social network. The higher the ratio, the more condensed the personal relations, the stronger the control and thus, the smaller the chance of developing new connections. The smaller the network, the worse-off it is to benefit the acquisition of learning resources. Research also indicates that network density affects the probability of suspensions and drop-outs. Although the explanatory power of the regression model in this paper is not high, the findings can shed light on trends for the reference of students support policy in university.

Influence of friendship networks on suspended and dropped-out students

Lunch is the best occasion on the campus to make friends, particularly for freshmen. In the new environment with new faces and things, building their interpersonal relations is essential for freshmen. Studies indicate a partial overlap between the network of lunch friends and the network for assistance in knowledge acquisition. However, the lunchmate network opens to more new connections.

Meanwhile, it is worth noting that the suspended and dropped-out students in College of Engineering and College of Management are located on the same side of the networks for lunch friends, implying that they have similar friends. This finding can serve as a reference to supervisors and supporting teachers in the examination of peer influence before students decide to suspend or quit from the university.



Potential effects of a periphery position on suspensions and drop-outs

According to the classroom graph showing network structures, many students posited peripherally in the network for assistance in knowledge acquisition even after almost one year in university. These students tend to have smaller networks as well. The research findings suggest that a high density of assistance in knowledge acquisition affects the probability of suspensions and drop-outs for periphery students. This means that the school supporting strategy can lend a helping hand to the students with higher suspension/drop-out risks by leveraging the structure and characteristics of classroom social networks. Meanwhile, a comparison of the network for assistance in knowledge acquisition and the network of lunch friends can help to identify the students who are likely to suspend or quit from the university. This will help to devise an effective supporting strategy.

Conclusion and discussion

The network graphs created based on the survey depict a few connections for suspended and droppedout students in their class social networks. Also, these students are mostly at periphery positons of the networks. Most of the students are connected with the network for assistance in knowledge acquisitions. This means most students can establish relations with classmates to seek assistance in learning. Intriguingly, the suspended and dropped-out students are not peripheries in terms of after-school interactions with classmates, as shown in the networks of lunch friends. They, however, tend to develop similar relations in the proximity of the networks.

An examination of the characteristics of social networks suggests a negative correlation between the network size for assistance in knowledge acquisition and the rankings of academic performances. Therefore, the predictive effect of network sizes is significantly negative. In contrast, network density exhibits significantly positive predictive effects. In other words, the probability of suspensions and drop-outs is affected by network density. This is a topic worthy of further investigations with large samples. A high network density is indicative of the ratios of pair-wise selections among students. The higher the value, the more compatible network members. If the number of connections can be increased and the network solidarity can be enhanced, it should make the personal learning network even more successful.

This paper does not take into account the psychological characteristics of students regarding learning and does not compare whether psychological test scores serve as a better predicator of suspension/dropout risks than social network characteristics. In the next stage, the plan is to combine the survey on network characteristics with psychological test scores in order to assist in the screening of students who need a high level of attention. The research findings indicate that the application of social network surveys to the planning of class support can enhance the attention to students at the peripheral positions of networks. It can also help to continuously monitor the development of their social networks in school. Going forward, the indicators used for the social networks analysis can be integrated with the study of other institutional research data to extend support to departments and faculties in the improvement of students' learning achievements.

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Using Visualization to Explore the Change of Institutional Research in South East Asia

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ABSTRACT

This study focuses on the changes in the trend of institutional research in South East Asia. As we know, South East Asian Association for Institutional Research, SEAAIR was formed in 2001, and held a conference in the same year. Besides, SEAAIR published Journal of Institutional Research South East Asia to encourage regional institutional research, and enhance the impact of published articles. The research method is to analyze author keywords and countries of articles published in Journal of Institutional Research South East Asia from the first volume, published in 2002. We calculate above data year by year, and use visualization to display the research results that will help to understand the trend of institutional research more easily and quickly. In order to statistic above data, their keywords and countries in each article were gathered from Scopus. The aim of this study is to explore the popular and important research themes in the field of institutional research in South East Asia, and which countries are concerned about this research field. Furthermore, we look forward to that this study will inspire future research directions by reviewing past researches.

Keywords: Institutional Research, Visualization, South East Asia, National Level Comparison, Historical Review





Introduction

Institutional Research (IR) is not a new idea, which was articulated by Nevitt Sanford in 1962. Sanford saw institutional research as a series of long-term, theoretically based studies of institutional functioning and educational outcomes, though he did not use institutional research as a label in that time (Terenzini, 1993). Saupe (1990) defined institutional research as research conducted within an institution of higher education in order to provide information that supports institutional planning, policy formulation, and decision making. This function-orientated definition explained why governments and universities support researchers involved in institutional researches.

Tracing the evolution of institutional research and Association for Institutional Research (AIR) since their emergence in the early 1960s and concludes that both the definitions and activities of institutional research are to some extent dynamic over time (Terenzini, 1993). Furthermore, Terenzini (1993) generalizes a conception of institutional research as comprising three tiers of organizational intelligence. The first tier, technical and analytical intelligence, requires familiarity with the basic analytical processes of institutional research. The second tier, issues intelligence, requires knowledge of substantive institutional management issues in four areas: students, faculty, finances, and facilities. The third tier, contextual intelligence, requires understanding of the history and culture of higher education in general and of the particular campus on which one works. In other words, institutional research needs different kinds of technical skills and knowledge. IR research can focus on many aspects and demonstrate diversity.

Ko (2015) mentioned while institutional research is distributed throughout the world, IR in Asian countries has not been emphasized until recently. Institutional research in Asia is not yet widely visible to the higher education community. Nor has the community paid IR much attention. However, with a changing landscape of higher education in Asia—including its rapid expansion and growing concerns about social accountability—IR has been recognized by college administrators and higher education in Asia. We found this trend by analyzing Journal of Institutional Research South East Asia. It would be discussed in the following content.

Institutional Research Resources

As we mentioned before, tasks related to institutional research have existed as long as there have been institutions of higher learning. The term IR has only been in vogue since the late 1950s, when IR offices began to be established across institutions in the United States (Colderon & Webber, 2015). Table 1 shows the global, regional and national associations for institutional research. Most of associations in Table 1 are affiliated organizations of the Association for Institutional Research (AIR), but they are independent of AIR, and share a common mission of data use for the improvement of higher education.

Country or Region	Association	Established Year
United States	Association for Institutional Research (AIR)	1966
Europe	European Association for Institutional Research (EAIR)	1979
Australia	Australasian Association for Institutional Research (AAIR)	1988
Canada	Canadian Institutional Research and Planning Association (CIRPA)	1989
Southern African	Southern African Association for Institutional Research (SAAIR)	1994
United States	Overseas Chinese Association for	1998

Table 1: Associations for Institutional Research



Country or Region	Association	Established Year
	Institutional Research (OCAIR)	
Southoast Asia	South East Asia Association for	2000
Southeast Asia	Institutional Research (SEAAIR)	2000
	Association Of Institutional Research	
Thailand	And Higher Education Development	2000
	(Thailand)	
Middle East to North Africa	Middle East North Africa AIR	2007
Middle East to North Affica	(MENA-AIR)	2007
Dhilinpines	Philippine Association of Institutions	2007
Fimppines	for Research (PAIR)	2007
Toiwon	Taiwan Association for Institutional	2016
Taiwan	Research (TAIR)	2016

The organizations listed above, in common, held conferences or forums as a platform for researcher to share their research findings. Take South East Asia Association for Institutional Research (SEAAIR) as an example. After annual conference, the selected articles in the conference would be published in the Journal of Institutional Research South East Asia. In other words, through the publication of academic achievements, it will contribute to the development of the research field, provide follow-up research for the direction of reference. Table 2 organized the journals related to institutional research.

Journal	ISSN	Publisher	Year
The Journal of Higher Education	0022-1546 (Print) 1538-4640 (Online)	Taylor & Francis	1930-
Higher Education	0018-1560 (Print) 1573-174X (Online)	Springer	1972-
Research in Higher Education	0361-0365 (Print) 1573-188X (Online)	Springer	1973-
New Directions for Institutional Research	1536-075X (Online)	Association for Institutional Research, Wiley	1974-
Innovative Higher Education	0742-5627 (Print) 1573-1758 (Online)	Springer	1976-
Journal of Higher Education Policy and Management	1360-080X (Print) 1469-9508 (Online)	Taylor & Francis	1979-
Quality in Higher Education	1353-8322 (Print) 1470-1081 (Online)	Taylor & Francis	1995-
Tertiary Education and Management	1358-3883 (Print) 1573-1936 (Online)	Taylor & Francis	1995-
Journal of Higher Education Outreach and Engagement	1534-6102 (Print) 2164-8212 (Online)	University of Georgia	1996-
Journal of Institutional Research South East Asia	1675-6061	South-East Asia Association for Institutional Research	2002-
Educational Research for Policy and Practice	1570-2081 (Print) 1573-1723 (Online)	Springer	2002-
Africa Education Review	1814-6627 (Print) 1753-5921 (Online)	Taylor & Francis	2004-
Journal of Institutional Economics	1744-1374 (Print) 1744-1382 (Online)	Cambridge University Press	2005-
The Journal of Assessment	2160-6765 (Print)	Penn State University Press	2010-

Table 2: Journals Related to Institutional Research



Journal	ISSN	Publisher	Year	
and Institutional Effectiveness	2160-6757 (Online)			
Higher Education Studies	1925-4741 (Print)	Canadian Center of	2011	
Higher Education Studies	1925-475X (Online)	Science and Education	2011-	
International Journal of	1927-6044 (Print)	Seiedu	2012	
Higher Education	1927-6052 (Online)	Sciedu	2012-	
IDAID Institutional Descerab	Philippine Association of		2013	
JF AIR Institutional Research	2244-1010	Institutions for Research	2013-	
International Journal of	2422 2675 (Drint)	International Institute of		
Institutional Research and	2432-3073 (Fillit) 2432-3683 (Online)	Applied Information	2017-	
Management	2432-3063 (Omme)	Applied informatics		

Methodology

In order to explore the popular and important research themes in the field of institutional research in South East Asia, and which countries are concerned about this research field, this study used the Scopus database to collect articles published in the Journal of Institutional Research South East Asia from the first volume, published in 2002. We analyzed the authors and keywords of the articles year by year, and used visualization to display the research results that will help to understand the trend of institutional research more easily and quickly.

In the process of collecting data, we found that some authors' affiliations are not specific. It is difficult to recognize they come from which countries. To solve this problem, we used Google search to obtain authors' profile, and supplemented their countries for subsequent analysis.

Moreover, when analyzing author keywords, we merged the keywords with different capitalization, singular and plural nouns, and unnecessary conjunctions.

Results

Number of Articles

This study collected 201 articles published from 2002 to 2018, and average 11.82 articles per year. Figure 1 shows the numbers of articles published in each year. From Figure 1, we found the number of articles published in Journal of Institutional Research South East Asia shows a trend of growing year by year. In 2008, it was the lowest point. Since then, it has risen obviously. Although the upward trend is not stable, it has basically continued to rise.



Figure 1: Number of Articles per Year



Number of Authors

Figure 2 shows the number of authors per article. In 201 articles, 126 articles (62.69%) are single author, and 75 articles (37.31%) are more than one author. 53 articles are two authors, and 22 articles are three authors. Among these 75 articles, only 21 articles (28%) whose authors are come from different countries. It means the studies of institutional research are specific and usually focus on single country or unit.



Figure 3 shows the number of countries per year. We noticed since 2012, the number of countries has increased year by year, which indicates that more and more countries are beginning to invest in the research of IR, and the visibility and influence of this research field is gradually increasing in Asia.



Figure 3: Number of Countries per Year

Analysis of Countries

According to Wikipedia, Southeast Asia is a subregion of Asia, consisting of the countries that are geographically south of China and Japan, east of India, west of Papua New Guinea, and north of Australia. There are 11 countries included in Southeast Asia, which are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor Leste and Vietnam. When we analyzed the authors' countries, we found that only Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam had published articles in Journal of Institutional Research South East Asia. Figure 4 is a bubble map to show number of articles per country.



Figure 4: Number of Articles per Country in bubble map

In Figure 4, we found most of the authors are from countries in Southeast Asia, but authors from other regions have contributed to Journal of Institutional Research South East Asia, especially in the Middle East and Australia.





Figure 4 and 5 show the number of articles published by countries in different way, which is overview of country analysis. The co-authors are not included in statistic. In Table 3, we compared number of articles per country including and not including co-authors. As shown in Table 3, whether or not to calculate co-authors, Malaysia published more than a quarter of articles in Journal of Institutional



Research South East Asia. The second one country is Jordan, and the third one is Australia. The top three countries have published more than half of articles in Journal of Institutional Research South Asia.

Country	Number o (NOT Includi	of Articles ng Co-author)	Number of Articles (Including Co-author)		
Malaysia	54	26.87%	56	25.11%	
Jordan	45	22.39%	46	20.63%	
Australia	26	12.94%	35	15.70%	
Thailand	24	11.94%	25	11.21%	
Philippines	20	9.95%	21	9.42%	
Indonesia	10	4.98%	10	4.48%	
China	4	1.99%	5	2.24%	
Saudi Arabia	3	1.49%	3	1.35%	
Taiwan	3	1.49%	4	1.79%	
Japan	2	1.00%	2	0.90%	
Vietnam	2	1.00%	3	1.35%	
Algeria	1	0.50%	1	0.45%	
Fiji		0.50%	1	0.45%	
India	1	0.50%	1	0.45%	
New Zealand	1	0.50%	1	0.45%	
Singapore	1	0.50%	1	0.45%	
Spain	1	0.50%	2	0.90%	
United Kingdom	1	0.50%	2	0.90%	
United States	1	0.50%	2	0.90%	
Kuwait	0	0.00%	1	0.45%	
Syrian Arab Republic	0	0.00%	1	0.45%	
Total	201	100.00%	223	100.00%	

Figure 6 is a horizontal bar diagram drawn according to Table 3. In Figure 6, we easily found that there are significant differences in Australia. When we calculated co-authors, the number of articles is 35, comparing to avoid co-authors, which is 26. It means many authors cooperated internationally with Australian researchers.



Figure 6: Number of Articles per Country by calculating co-author or not

Analysis of Keywords

Of the 201 articles collected in this study, 70 articles did not provide author keywords, and the remaining



131 articles compiled a total of 569 author keywords. We merged some keywords because of different capitalization, singular and plural nouns, and unnecessary conjunctions. After this process, there are 472 keywords remain. On average, each keyword appears 1.2 times. Table 4 is the keywords appear more than 3 times.

Keywords	Appear Times	Keywords	Appear Times
Jordan	20	Faculty members	3
Higher education	11	Lifelong learning	3
University students	6	Research	3
Student engagement	4	Self-efficacy	3
Academic performance	3	Student confidence	3
Attitudes	3	Student experience	3
Blended learning	3	Thailand	3
Critical thinking	3	Undergraduates	3
Employability	3	Workforce development	3

Table 4:	Keywords	Appear	More	than 3	Times

Since the author keyword is very different, we tried to use word cloud to analyze these keywords. Word cloud is useful for quickly perceiving the most prominent terms and for locating a term to determine its relative prominence. Figure 7 is word cloud of keywords. In Figure 7, we found the most important keywords that appear most frequently in institutional research, including learning, education, university, students etc.



Figure 7: Word Cloud of Keywords

Conclusion

This study focuses on the changes in the trend of institutional research in South East Asia. We used bibliometric as research method to analyze author keywords and countries of articles published in Journal of Institutional Research South East Asia from the first volume.

By analyzing the number of articles and number of countries published in Journal of Institutional Research South East Asia, we found that institutional research in Southeast Asia has become more and more popular and visible. More and more countries are investing in the field of institutional research, and relevant research is not limited to Southeast Asia. There are also many scholars from other countries concerned about the development of institutional research in Southeast Asia. From the analysis of keywords, we realized that research of institutional research is variety and unique. The researches have



different research purposes and orientations depending on the situation of countries and units. Of course, there are still some research focuses of common concern, and it is worthy of follow-up research.

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About A Role on Information Management for Institutional Research

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ABSTRACT

Gathering institutional information is the first job, and also the first difficulty in institutional research. Especially, after repeating the IR cycle, like Howard-McLaughlin, issues on gathering information can be seen. We study general solutions on the issues from view point of informatics. Introducing the FAIR data principle and a method to describe metadata of IR data, we discuss and propose a way of information management for institutional research.

Keywords: Information Management, Ontology Engineering, Database







Introduction

It has been more than 15 years since institutional research was introduced in Japan. Backed by the government, many higher education institutions have set up IR offices and have specialized human resources. In particular, Japanese national universities are trying to use IR not only for education IR but also for monitoring research activities, staffing of faculty and appropriate allocation of resources. IR is growing in importance.

On promoting IR, data collection is the first task and is said to be the first difficulty. While IR is a sociological or organizational task, the task of data collection needs information processing technology. Human resources with a combination of sociological background and informatics skills are not so easy to find. In many cases, the staff assigned to the IR office are specialists in pedagogy and statistics, and tasks that require IT skills appear to be outsourced. Because of outsourcing IT tasks, it seems to be hard to collect data in the institution getting along with its data culture.

Even if there are no technicians at the IR office, isn't there a way to make data collection work nicely? Furthermore, developing and maintaining data warehouse depends on the specific context of the institution. As a result, it seems difficult to find a general solution to the data collection problem.

The authors, who are actually engaged in IR, realized that this problem was not merely caused by the lack of IT technician resources. One major cause of this problem is that persons in charge but not specialized in IT cannot effectively manage the metadata possessed by operational systems¹, so that they cannot output IR data sufficiently. In addition, in organizations where sectionalism remains, updating metadata of operational systems are not shared often.

Metadata indicates what information the data holds and in what form. Also, the possibility of combination with other data will be analyzed and investigated from metadata. Although it is difficult to generally discuss how to collect and manage data for itself used for IR, we can general discussions on management of metadata.

CERIF is a data format that supports data exchange of research information in Europe. The definition of CERIF is based on the CERIF ontology constructed with ontology engineering. For instance, the CERIF ontology formally describes how "people" and "organization" relate to research results (publications and patents, etc.) in research information. Research institutes and universities all over Europe share CERIF ontology and maintain linkage with their local database metadata. This facilitates the exchange of research information between different countries and organizations by referring to CERIF during data exchange.

We propose that the methodology used in CERIF also be applied to IR data collection at the institution. This proposal is considered to be highly adaptable not only to internal organizations but also to data linkage with external organizations.

On the other hand, we have another problem that is more practical for operational systems in institutions. What kind of method would be considered for management of metadata for operational systems?

Open science is an initiative to promote science and technology by sharing scientific research data as human property. The FAIR Data Principle is a guideline that describes what the primary owner should do on the data. By following the principle, more efficient archiving of scientific research data can be realized. FORCE 11, the scientific research community in Europe, discussed the draft of FAIR Data Principle and released it in 2011.

The FAIR Data Principle is widely understood and supported in the sense that the FAIR Data Principle is effective not only for scientific research data but also for generalization of research outcome information. As mentioned in the following section, the properties described in the FAIR Data Principle are the characteristics those are necessary for information that is expected to be secondarily used, and

¹ In this paper "operational systems" are meant information systems which support education, research and administration in higher education institutions.



such information is not limited to fields such as scientific research and organizational activities. In this paper, in order to use data in operational systems for IR, we propose to check the properties of data in operational systems based on the FAIR Data Principle.

The following sections are organized as follows. Section 2 describes the FAIR principle and CERIF. Section 3 describes the check sheets of the data in operational systems created by the authors according to the FAIR principle. Section 4 introduces the ontology for educational information that the authors are developing. In Section 5 we conclude the discussion with introducing the future challenges we are facing.

FAIR Data Principle and CERIF Ontology

FAIR Data Principle

FAIR Data Principle has been proposed by FORCE11 (2011), the community for researchers, librarian and funders. It is aiming at good data management for scientific research data. FORCE11 began to discuss since 2011 and finally released the guide line in 2016. EU adopted FAIR Data Principle for Open Data Policy Pilot.

"FAIR" is an acronym for four attributes of scientific research data; to be Findable, to be Accessible, to be Interoperable and to be Re-usable. In order to realize the principle, every record in a scientific research data need to be indexed by persistent identifier, to be enriched with meta data, to be deployed on database system, and to be on networks.

Findable	F1. (meta)data are assigned a globally unique and eternally persistent identifier.
	F2. data are described with rich metadata.
	F3. (meta)data are registered or indexed in a searchable resource.
	F4. metadata specify the data identifier.
Accessible	A1 (meta)data are retrievable by their identifier using a standardized communications protocol.
	A1.1 the protocol is open, free, and universally implementable.
	A1.2 the protocol allows for an authentication and authorization procedure, where necessary.
	A2 metadata are accessible, even when the data are no longer available.
Interoperable	I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
	I2. (meta)data use vocabularies that follow FAIR principles.
	I3. (meta)data include qualified references to other (meta)data.
Re-usable	R1. meta(data) have a plurality of accurate and relevant attributes.
	R1.1. (meta)data are released with a clear and accessible data usage license.
	R1.2. (meta)data are associated with their provenance.
	R1.3. (meta)data meet domain-relevant community standards.

Table	9 FAIR Date	Principle	(FORCE11 2011)

The FAIR Data Principle is said to be a valid principle for research results information and IR data, but why? It can be said that it is in the thoroughness of the enrichment of metadata and ID assignment.

When using data in operational systems for IR, the column name alone is insufficient to grasp the meaning of the data in detail. In addition, metadata is indispensable to examine the possibility of



combination with other data. Furthermore, by providing a persistent ID to all the records, data-join would be guaranteed as stable.



CERIF Ontology

Fig. 1 CERIF Ontology 1.3

Source: EuroCRIS website http://eurocris.org/ontologies/cerif/

Ontology engineering is a technique to describe formal representation of concepts and relationships between those concepts in the real world. Ontology technique is useful not only information systems but also every human process, for example, medical operations.

Common European Research Information Format (CERIF) is a standard data format designed for data exchange among European scientific research activity. It has the ontology. Normally ontology is described in XML format, but it can draw the diagram (Fig.1).

In ontology engineering, concepts in knowledge of the real world are called "Class". Class has rank, which is called "Relation". "Is-a" relation means a relation between upper class and lower class. In some case, a set of classes is described as a class, then we have "part-of" relation which means relationship between set-class of classes and its element-class. Attribute of class is expressed "attribute-of" relation.

Designers can optionally add relations as long as they avoid redundancy. It is generally said that there is no unique way to create an ontology for any knowledge system. Therefore, we can freely give ontology according to what kind of viewpoint it uses (Natalya et.al. 2001). So, the ontology shown here is one of possibilities, not a suggestion as the only solution.



For example, in a part of the ontology of CERIF in Fig. 2, the class cerif:Publication (publication) is a upper class of cerif:ResultEntity (is-a relation), and arrows are drawn from the lower class to the upper class. Furthermore, cerif:ResultEntity is one of the items in cerif:Classification (classification of research information) (is-class fied-by relationship) (see Fig. 3). The last is-classified-by relationship is an additionally introduced class relation. This is an example in which relationship can be flexibly introduced in ontology engineering. This ontology represents the following description:



Fig. 2 A part of ontology of CERIF

Research results consist of papers, publications, products and patents. The research outcome is one item of research information, and information on basic object (BaseEntity) and infrastructure (InfrastructureEntity) are also included as items of research information.

We can see that ontology engineering is used to expresses concepts and relations efficiently in the domain knowledge of CERIF.

FAIR Data Check List and Data Inheritance Information Format

With reference to the FAIR Data Principle and the CERIF ontology approach, we propose to introduce *FAIR Data Check List* and *Data Inheritance Information Format* into IR data logistics. This section specifically proposes these lists and formats.

FAIR Data Check List

In this section we introduce a sample of FAIR Data Check list which is practical for management of IR information. If you check this list, you can determine if the target information can function effectively as IR information. However, the list given here is not necessarily correct, but it is assumed to be modified by the culture of the institution.

FAIR Data Principle	Check List (sample)
F1. (meta)data are assigned a globally unique and eternally persistent identifier.	0) Is the data table assigned PID?1) Which identifiers are chosen for the data table?2) Does the data table have or access the master table of the identifiers?
F2. data are described with rich metadata.	0) Does the document of metadata exist?1) Who is in charge of the maintenance of metadata?
A1.2 the protocol allows for an authentication and authorization	0) If authentication and authorization procedure are provided, who is in charge of those procedures?

Table 10 FAIR Data Check List (sample)



procedure, where necessary.	
A2 metadata are accessible, even when	0) Where is the meta data description located in the institution?
the data are no longer available.	
I1. (meta)data use a formal, accessible,	0) Is (meta)data described in the formal way or not? If so, what
shared, and broadly applicable	kind of format is used for description?
language for knowledge representation.	1) Is (meta)data accessible? Where is (meta)data located? Do
	they have URL?
I2. (meta)data use vocabularies that	0) Does the institution have thesaurus for (meta)data vocabulary?
follow FAIR principles.	1) Who is in charge of the maintenance of vocabulary thesaurus?
I3. (meta)data include qualified	0) Does (meta)data have reference for the description?
references to other (meta)data.	
R1.1. (meta)data are released with	0) Does (meta)data have appropriate licenses? If not, what is
a clear and accessible data usage license.	workaround?
R1.2. (meta)data are associated with	0) From which operational system does the meta(data) come?
their provenance.	





Data Inheritance Information Format



Fig. 3 Data Inheritance Information Format

The figure shown in Fig.3 is a sample of *Data Inheritance Information Format* which consists of metadata information, ER diagram, star schema and multidimensional data cube design. This format is described for each analysis theme in the IR data warehouse.

Introduction of Development of Ontology for Educational Data

In this section, we prototype a part of an ontology of educational information. The following six items are listed as possible classes.



- 1. Student
- 2. Faculty
- 3. Department
- 4. Lesson
- 5. Curriculum
- 6. Grade

The "Lesson" class and the "Curriculum" class are clearly an *is-a* relation to the super class "Educational Entity". Looking back to the ontology of CERIF, the engagement of the "Organization" class and the "Person" class are comprehended by introducing an upper class called "Base Entity" class.

Following this, it is conceivable that for the "Student" class, the "Faculty" class and the "Department" class we can construct unification-class by introducing the super classes like the "Personnel Entity" class as well as the "Educational Entity" class which is the super class of the "Lesson" class, the "Grade" class and the "Curriculum" class.



Between subclasses of the "Personnel Entity" super class and the "Educational Entity" super class, "attribute-of" relations can be given in the sense that each "Personnel Entity" has "Educational Entity" as activity, results or roles. So, we can state that the "Lesson" class is "attribute-of" the "Faculty" class, the "Grade" class is "attribute-of" the "Student" class and the "Curriculum" class is "attribute-of" the "Department" class.

Our project to develop the ontology for education is under progress. The progress of this project will be reported accordingly at appropriate international conferences.

Conclusion and Challenges

In this paper, we advocate data logistics as one of the roles of information management in institutional research. The purpose is to facilitate data collection, and we proposed ontology construction on institutional research data and metadata management as concrete methods. The authors will actually implement this proposal at their institution. It is supposed to examine and report on the outcome of how this proposal will contribute to efficient data collection.



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Investigating Institutional Research Information System Design and Implementation

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ABSTRACT

The Institutional Research Information System is a school platform system based on the concept of a decision support system. When users in their department obtain data through the system to support decision-makers of the department at that time, this study takes the Institutional Research Information System of a university of technology as an example and uses Schultheis and Sumner's (1995) information system model to describe the process of transforming data into information. The process mainly comprises elements of technology, organization, and personnel. In combination with the recommendations of the Institutional Research Information System proposed by Professor Peng Senming, we propose a design blueprint and make suggestions regarding the future use of the Institutional Research Information System at a university of technology.

The research makes the following contributions to the literature: 1. The research data concern the current use of an Institutional Research Information System at a university of technology, and the study compares the functions of other schools, literature, and scholars and outlines the architecture of a future Institutional Research Information System. 2. Recommendations are made for various Institutional Research Information Systems for a university of technology. 3. The study proposes how to use technology to solve the current predicament and proposes new technology applications. All the above sources are from the department's current situation analysis.

Keywords: Information System Model, Institutional Research Information System, School Platform System





Introduction

Taiwan's vocational education environment has been undergoing changes, and the shortage of children has resulted in a crisis regarding an insufficient number of students. Thus, more information and data are required to guide a school's decision-making. Institutional Research's sources are university administrative data, survey data, and other school data. Therefore, an Institutional Research Information System is necessary; it can be used to integrate and analyze various topics and analyze the interpretation of data to provide a foundation for decision-making. Saupe (1981, 1990) created the Institutional Research Information System and conducted research within the organization to provide the information required for higher education institutional research can be integrated into the following four types: collecting information, analyzing and structuring data to transform them into information, and providing results to school members to make decisions.

Research Questions

For an institutional research department, collecting information is indispensable for business content. Close cooperation with the school information center and building its own Institutional Research Information System for data collection and analysis are essential factors. This study planned an Institutional Research Information System for a university of science and technology on the basis of Schultheis and Sumner (1995) and proposed a model of an information system to describe the process of converting data into information. Technology, organization, and personnel are factors within the information process. In combination with the recommendations for the Institutional Research Information System proposed by Professor Peng Senming, this study proposes the design blueprint and suggestions for the future platform of a university of science and technology.

Literature Review

Institutional Research

Saupe and Montgomery (1970) proposed institutional research to facilitate the operation and decisionmaking of higher education institutions through data collection, analysis, reporting, and faculty actions. Volkwein (1999; 2008) defined institutional research as an information analysis center and an analysis of strategy. Therefore, the focus of institutional research is to find problems, collect information, analyze data, provide the means for high-level decision-making, and finally to determine the appropriate actions to achieve a solution.



Figure 1: Institutional Research Cycle

Swing (2009) defined the critical role of an institutional research cycle as a process of active participation in the management and leadership system change. The application of institutional research by domestic and foreign researchers to higher education institutions demonstrates that their task is to



provide data collection capacity and create a database as a means of engendering self-improvement by schools. Therefore, sharing data among various departments in the school is fundamental. The method entails referring to experiences in foreign institutional research programs. Yuanzhi (2017) asserted that the purpose of institutional research is to enhance the ability of a university to undertake professional management. The professional statistics, data analysis, and support capabilities enhance students' learning effectiveness and provide public-friendly information. The purpose of institutional research is to manage the university's affairs. Volkwein (2008) understood and discussed the functions of institutional research and presented "Institutional Research and Analysis," "Planning and Budgeting," "Evaluation, Efficiency, and Certification," and the "Gold Triangle" for United States' institutional research (Figure 2).





Figure 2: Institutional Research Golden Triangle

Terenzini (2012) described the nature of institutional research on the basis of interdependent organizational intelligence, consisting of technical and analytical intelligence, including factual information and analysis. Thus, analytical and methodological skills of this type have two forms: technical knowledge and analysis.

2. Information System Construction

Schultheis and Sumner [31] defined an organization as comprising five groups: 1. top decision-makers: high-level managers; 2. middle managers: managers under the top decision-makers; 3. the core of the operations personnel: the essential work of the organization is to convert the input of the organization into output and deliver the output; and 4. technocrats who standardize the organization's management and work, and according to these standards, the organization members can convert the input to an output. Moreover, the organization environment can accept support staff who provide support for work that is not part of the operation process of the core staff. Schultheis and Sumner (1995) proposed a model of an information system that can describe the process by which information transfer from data and technical, organizational, and human factors process is base. The core of this model is people, one of the critical functions of institutional research. Human intervention is required to determine what information is beneficial and how the data operate to form information (Figure 3).





Figure 3: Information System Model

3. Information System Construction

Institutional research scholars use their ideas to describe the process of transforming data into information. It is also the process of using the professional judgment ability system. Users should first conduct user needs surveys according to Renhe and Xinhui (2010). User demand is considered in order to solve a problem that the information of the system is expected to obtain. In the process of information system development, user demand is the most essential and critical link, but it also is prone to errors, one of the main reasons for system failure. Therefore, user demand is a concern that must receive attention. Interviews and questionnaires can provide information regarding user needs.

4. Institutional Research Information System

Advances in information technology (IT) can help colleges and universities improve student achievement and improve institutional research. Institutional research includes research, learning outcome assessment, planning, school efficiency, and other internal and external reporting requirements. The data used in institutional research depend on IT to maintain system construction.

Integration and management of an institutional research database, promotion of institutional research energy, analysis of notable topics, school decision support with the development of computer technology and big data analysis are active. A satisfactory database is institutional-research-based. As previously stated, a satisfactory database must be maintained by an IT department and an IR unit working together to standardize the structure of a database, variable definitions and classifications, proper nouns, and data fields of each room so that IR can quickly obtain and correctly interpret the database. Subsequent analysis can help decision-makers make the appropriate decisions. Hartley and Almuhaidib (2007) asserted that because of the rapid development of IT, decision-making should use a large amount of information processing and analysis. A decision support system (DSS) provides tools to facilitate analysis and enables decision-makers to simulate different policies and selection strategies. The study emphasized the development of a central platform through the use of many educational databases and the implementation of administrative decision-making. The use of administrative staff was a platform for the platform test experiment, and the focus was on the interview form, the platform interface, and the function. The development of the use results provides suggestions to make the DSS decision output more discriminatory, responsive, and transparent. The concept of DSS forms the institutional research platform system. Different users use this system to obtain data and information, and they are the decision-makers who play their roles.



Professor Peng Senming's suggestions for the institutional research system were based on the inventory of existing information files on campus. For example, a study that is a history survey (including the willingness to learn, level of learning input, industry choices), electives and grade records of the Academic Affairs Office, and the correspondence between curriculum and educational goals. Senming suggested collecting relevant information and creating data files: extract the relevant data from the existing data files and integrate them into institutional research database files for analysis, review the missing information on the basis of the teaching principles and related research literature (e.g., whether there is a lack of admissions and designated subject test scores, admissions, national and English proficiency test scores, and high school learning history), and design and collect missing information. (3) Database construction equipment, institutional research file management software, statistical analysis software, online statistical analysis mechanism, the creation of a statistical data display mechanism, and the establishment of an online data collection mechanism were also mentioned as essential.

Methods

In the long-term development of the organization, the application of IT depends on who can obtain the opportunity and gain an advantage; of course, this does not determine how much money to invest in IT; rather, it a contention regarding how to use IT. The most important base of institutional research is the "repository." The resources of each business unit must be tightly integrated, and the data should be integrated and analyzed, integrated, and applied. Case University of Science and Technology is committed to promoting smart campuses and construction. The school's administrative system is self-developed and includes the Office of Student Affairs, Academic Affairs Office, Office of General Affairs Research and Development Division, Personnel Division, Accounting Division, cloud services, e-mail service, and campus app. On the basis of the aforementioned literature, it attempted to create the school's institutional research information architecture plan.

Case University Institutional Research Information Platform Architecture

According to the recommendations for creating the Institutional Research Information System proposed by Professor Peng Senming, according to the inventory of existing data files on campus. For example, teachers, courses, students, tracking, assessment, feedback, school, internationalization. The following table:

	Table 1: Inventory of the entire school database
1	Teacher personal experience, teaching plan, papers, promotion, research, individual teacher performance
Teacher	Course materials, courses, class outlines, teaching materials, compulsory courses, number of students
Course	Including necessary student information (including admissions, grades, graduating high school, status, nationality), registration rate, student record, extension
Student	Freshman Directional Counseling Reward Scale, student learning effectiveness long-term tracking survey, employer satisfaction survey, graduate tracking survey
track	College departmental competency indicators, student semester grades, participation in various competitions
Assessment	Teaching satisfaction questionnaire, a long-term follow-up survey of student learning effectiveness, classroom response questionnaire
Feedback	Necessary information on all schools, including school grounds, school buildings, classroom usage, equipment usage, and book usage
School	Students' foreign language examinations pass the materials, study abroad student materials, and international student materials



Collect relevant information and create data files. Extract the relevant data from the existing data files and integrate that data into the institutional research data file for analysis.



Figure 4: Three-tier architecture of the Case University institutional research information integration platform

Database construction equipment, institutional research database management software, statistical analysis software, online statistical analysis mechanisms, creation of statistical data display mechanisms, and establishment of online data collection mechanisms. The school has successively completed several systems related to the Office of Student Affairs, Academic Affairs Office, and Institutional Research.



Figure 5: Huayun School Information Integration Platform

Results and Discussion

In the context of the current system architecture, the key institutional research topics concerning the school to be investigated are as follows:



Table 2: Research topics		
Category A: Normal	Category B: Cross-Domain	
Research Topics	Research Topics	
Source structure	Analysis of the energy generated	
data	by the higher education system	
Student admission	Analysis of the effectiveness of	
information	counseling for disadvantaged	
	students	
Student achievement	Investigation and analysis of	
data	college students' learning	
	adaptation	
Graduate flow	Teacher's energy analysis	
survey		
Retreat transfer	Southeast Asian cross-	
information	disciplinary learning	
	effectiveness	
Teaching assessment		
data		

The explanations for the normal research topics in Category A are as follows:

Source structure data: The source of the students (i.e., mainly from schools) can be analyzed and used as the basis for future enrollment.

Student admission Information: A student's gender, place of residence, parents' occupations, and upstream school are, in general, high school or comprehensive high school.

Student achievement data: The distribution of the current status and achievements of the students.

Graduate flow survey: Whether the work of each department is related to the graduate department, professionalism, and the turnover rate.

Retirement transfer information: Transfer information for students.

Teaching assessment data: Student surveys of their satisfaction with their teacher.

Analysis of the energy produced by the higher education and deep cultivation system: assessing how much output, and the efficiency of implementation, comes from each department's implementation of the Higher Education Deep Cultivation Program.

Analysis of the effectiveness of counseling for disadvantaged students: It can provide the disadvantaged students are studying in the learning profession or the various aspects of society.

Analysis of college students' learning adaptation: The learning status of the students in each department, how the students have adapted to the situation, and whether the students need assistance or satisfaction.

Teacher's energy analysis of production and learning: Data on teachers' in each department regarding various aspects, such as patents, industry, research, whether a combination of teaching is used, and current performance status.

Cross-disciplinary learning effectiveness in Southeast Asia: Relevant courses in Southeast Asia, the current start-up status, the status of the course, and the learning situation of the students.

Conclusions

Based on the aforementioned research and discussion, the conclusions are as follows: 1. The research results will be based on the current situation of the Institutional Research Information System of the



university and used to compare the functions of other schools, literature, and scholars and plan the architecture diagram of the university's Institutional Research Information System. 2. Recommendations for the institutional research information function will be provided. All the above sources are from the department's current situation analysis.

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SEAAIR2019 THEME 3.

Institutional Governance: Enrollment, Social Mobility and Higher Education Accountability

19th South East Asian Association for Institutional Research Annual Conference			
Theme	Transforming Intelligence Into Action in IR		
	Quality Assurance: Practices, Impacts and Outcomes		
	Advanced Technology and IR Application: Social Networks, Data Warehousing and Data Collection		
Sub-Theme	Institutional Governance: Enrollment, Social Mobility and Higher Education Accountability		
	Curricula Dimensions and Possibilities: innovations outhentic Assessments and Performance Evaluation		
	Research instructionalization systems, Dissemination and Utilization		



Modelling Universities as Complex Systems: The Difficulty of Transforming Attrition Intelligence into Unified Action

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ABSTRACT

Student attrition is possibly the most investigated and actioned issue in higher education for over eight decades. Yet, we seem incapable of winning the 'war' on attrition. At the last two annual conferences of the Association, the authors argued that just as breakthroughs in the physical sciences fuelled the industrial revolutions, we are now in the early stages of a social revolution fuelled by breakthroughs in the human sciences. The previous papers focused on new developments in the science of learning, and how it was transforming education. This paper focuses on breakthroughs in our understanding of institutions as complex human systems. Complex systems have behaviours that are difficult to understand and model with traditional, reductionist methods of analysis and design. This paper explores the nature of complex systems. The paper draws on the meta-theory of institutional logics and the analysis and design methods of systems dynamics to develop a model of student attrition. Institutions have multiple stakeholders and often competing objectives. Absolute solutions are not possible. 'War' is not the only solutions to problems. Collaboration, what Confucius called 'Harmony with difference', often provides better solutions.

Keywords: Complex Systems, Higher Education, Human Sciences, Institutional Logics, Student Attrition, Systems Dynamics.




Background

Student attrition

As society becomes more educated, increasing numbers of students aspire to gain a degree, what Trow (2005, p1) characterised as 'the transition from elite to mass to universal access'. The increasing importance of universities, particularly since a substantial portion of their cost is met with public funds, is that their efficient operation has become under increasing scrutiny. One issue that has gained attention is that a significant number of students who commence study leave before graduating. The issue, commonly called student attrition, has been recognised and studied for the last half century, with theories being developed in the seventies (Berger, Ramirez, & Lyons, 2005; Berger, Ramírez, & Lyons, 2012). For example, in Australia, about one out of seven students who commence study do not continue the following year. Figure one shows Australian university first year attrition rates from 2005 to 2016.



By far the dominant theory in student attrition is Vincent Tinto's "interactionist' model (Tinto, 1975, 1993)2. The model, influenced by Emile Durkheim's (1952) work on suicide describes attrition as a failure in the social and academic integration of the student with the institution.

Other models do exist. Braxton (2013) proposed what could be considered a more modern adaptation of Tinto's theory, with two types of student. School leavers who enter university fit Tinto's traditional model, while we now have an increasing cohort of mature age students who juggle work, family and part-time study for whom social and academic integration with the institution is less crucial. Habley, Bloom and Robbins (2012) in surveying the field, categorised approaches to retention into one of six perspectives: Sociological; Psychological; Organisational; Economic; Cultural; and Integrated. Tinto's and Braxton's models discussed above implicitly capture all these perspectives other than the economic perspective. The economic perspective is that the student makes rational financial choices, with the decision to continue study or leave being based on the direct and indirect costs and benefits of these two options.

² For example, a Google Scholar search of 'student attrition' (in May 2019) returned a book by Tinto with 16652 citations, The second most cited work had 3272 citations.



Many scholars apply an empirical approach. They report on the statistical probability of attrition given the characteristics of the student and institution. Astin and Osteguara (2012) list 47 factors that correlate with student attrition.

Four dominant underlying themes in the literature are worth drawing attention to. Firstly, student attrition is considered harmful, 'pathological' (Woodley, 2004). That there are benefits to attrition are rarely considered. Secondly, that the 'issue to be fixed' is the student (Habley, Valiga, McClanahan, & Burkum, 2010). Thirdly, the focus is on the first year of study(Nora & Crisp, 2012), even though there is considerable attrition in subsequent years (Bowser, Danaher, & Somasundaram, 2006). And given that there is already considerable investment needed to complete the first year, the loss when attrition occurs in subsequent years is greater. Fourthly the overwhelming tactic in attrition reduction is to identify the students most likely to attrite and focus resources on progressing them.

This paper adopts the perspective that attrition is a complex phenomenon. Even agreeing on a useful and measurable definition of the phenomenon is difficult. The definition used in figure 1, is: "*The New Adjusted Attrition rate for year(x) is the proportion of students who commenced a course in year(x) who neither complete in year(x) or year(x + 1) nor return in year(x + 1)"* (Department of Education and Training, 2018, Note 1). It accounts for (excludes) students who leave one university and join another one before the end of the next calendar year. It does not account for students who may take more than a year of absence, and then return and successfully graduate. Failing is different from attrition. A student who fails and repeats a year is not counted as attrited. A student who changes their course part-way is not considered attrited, whether or not their previously earned credits are transferable to the new course.

Scientific revolutions

Thomas Kuhn (1962, 1970), in his influential book 'The Structure of Scientific Revolutions' stated that science has long periods of stagnation or slow developments interspersed with periods of rapid, widespread growth. He coined the term 'paradigm shift' to explain the latter periods – that there was a fundamental conceptual change in the science that leads to a plethora of discoveries. Like opening a door in a dark room and the incoming light illuminates many previously hidden treasures.

Paradigm shifts in the physical sciences led to the industrial revolutions. Paradigm shifts are now occurring in the human sciences. Papers in previous SEAAIR conferences (Somasundaram, 2017; Somasundaram, Rasul, & Danaher, 2018) explored paradigm shifts in the science of learning, and its growing impact on education and educational institutions. This paper draws on our increasing understanding of (human) institutions as complex adaptive systems to explore the phenomenon of university student attrition.

Research Objectives and Contribution

The theme of this Conference is "*Transforming Intelligence into Action in IR*" Student attrition is a major topic in IT. It has substantial intelligence and substantial, well-motivated action. And yet, student attrition remains stubbornly difficult to reduce substantially.

The objective of this research is to develop a model of student attrition that illuminates its rich complexity, and thereby facilitate a better understanding of why attempts to reduce attrition levels have proven so difficult to achieve.

This research contributes to this conference and to the wider literature through its modelling of higher education institutions as complex adaptive systems, with multiple stakeholders. Successfully actioning intelligence in this environment is fraught with difficulties. This research provides a theoretical approach and model that other researchers and practitioners may find useful for their own purposes.

Theoretical framework and methodology

2.0.1 Michael Crotty (1998) emphasises the importance for researchers in the social (human) sciences to clearly specify their theoretical framework. This need can be traced back to the fact that while the theory of the physical sciences is usually grounded in the belief that they are seeking an objective truth,



the human sciences acknowledge and explore issues that are subjective – situated in people's cultures and values. The researcher's own culture and values affect the research. Therefore, making the researcher's theoretical framework explicit allows the readers to better understand and interpret the work.

2.02. This paper adapts Crotty's (ibid) four level hierarchy to specify the theoretical framework: (1) an epistemology; (2) a theoretical perspective; (3) a methodology; and, (4) methods. Table 1 summarises the theoretical framework used for this research, and each of the four is described in the sections below.

Epistemology	Institutional Logics				
Theoretical Perspective	Institutional Research as				
	Applied Science				
Methodology	Complex Human Systems				
Methods	Systems Dynamics;				
	Stakeholder Analysis;				

Table 1: The Theoretical Framework of This Research

Institutional logics

Institutional logics is a major theoretical framework originating from the social and organisational sciences, "both a meta-theory and a method of analysis" (Thornton & Ocasio, 2008, p99). Institutional logics is perhaps best described through a definition of the term 'logic':

the socially constructed, historical patterns of cultural symbols and material practices, including assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activity, organize time and space, and reproduce their lives and experiences.

(Thornton, Ocasio, & Lounsbury, 2012, p2)

Institutional logics links individual values and beliefs to that of organisations and society. It holds that individuals and institutions have multiple logics that shape their behaviour and the systems they construct. Logics can be complementary or conflicting, and if the latter, individuals and institutions have multiple ways of dealing with the conflict. For example, science and arts faculties have quite different logics (ways of seeing the world) and having different faculties and academic principles allows peaceful co-existence in one institution. Institutional logics thereby provides a useful epistemology for tackling multidisciplinary studies, by explicitly acknowledging the distinct logics, and objectively treating them non-judgementally (e.g. by treating qualitative and quantitate research methods as equally valid methods of pursuing knowledge).

Institutional Research as applied science

A theoretical perspective of Institutional Research (IR) as an applied science achieves four goals. Firstly, it acknowledges that IR must be based on science. Secondly, we acknowledge the distinction between a pure science and an applied science. Applying science requires a different, practical mind-set. Decisions need to be made with partial, often ambiguous information. Thirdly, grouping IR as an applied science allows it to freely borrow and apply methods from other applied sciences. Both the methods used in this research are also used in other applied sciences. Fourthly, while researching IR can be done in a mono-disciplinary, reductionist manner, applying IR, turning it into 'unified action' requires a multidisciplinary approach. As the definition of IR given in the next paragraph makes clear.

IR is defined as the application of scientific, economic, social, and practical knowledge in order to invent, design, build, maintain, research, and improve structures, systems, and processes for higher education (Adapted from Xu & Shi, 2015).

Methodology: complex human systems

The application of the reductionist methods typically used for the physical sciences rely on large system behaviour being able to be easily predicted from the behaviours of its constituent parts. It is better understood in comparison to complicated systems:



"Complicated problems originate from causes that can be individually distinguished; they can be addressed piece-by-piece; for each input to the system there is a proportionate output; the relevant systems can be controlled and the problems they present admit permanent solutions. On the other hand, complex problems and systems result from networks of multiple interacting causes that cannot be individually distinguished; must be addressed as entire systems, that is they cannot be addressed in a piecemeal way; they are such that small inputs may result in disproportionate effects; the problems they present cannot be solved once and for ever, but require to be systematically managed and typically any intervention merges into new problems as a result of the interventions dealing with them; and the relevant systems cannot be controlled."

(Poli, 2013, p142)

Student attrition is complex rather than complicated, as the six perspectives (s 1.3.5) and 47 factors (s 1.3.6) demonstrate. In transforming attrition intelligence into action, to be successful, the action needs to recognise attrition as a complex phenomenon rather than a complicated problem.

Methods (1) systems dynamics

As John Sterrman puts it in an influential paper on systems dynamics:

Today's problems often arise as unintended consequences of yesterday's solutions. Social systems often suffer from policy resistance, the tendency for well-intentioned interventions to be defeated by the response of the system to the intervention itself. The field of system dynamics, created at MIT in the 1950s by Jay Forrester, is designed to help us learn about the structure and dynamics of the complex systems in which we are embedded, design high-leverage policies for sustained improvement, and catalyse successful implementation and change. Drawing on engineering control theory and the modern theory of nonlinear dynamical systems, system dynamics often involves the development of formal models and management flight simulators to capture complex dynamics, and to create an environment for learning and policy design. Unlike pure engineering problems (if any exist) human systems present unique challenges, including long time horizons, issues that cross disciplinary boundaries, the need to develop reliable models of human behaviour, and the great difficulty of experimental testing.

(Sterman, 2000)

Systems dynamics is a method for creating *explicit* models of complex systems (Forrester, 1994). It applies several techniques not commonly found in other methods of modelling. Arguably the most powerful of which is positive and negative feed-back loops. Feedback loops describe how variables affect each other, either reinforcing or subduing each other. Stocks (stockpiles) are the elements in a process that holds physical objects, and flows describe their movement from one stock to another. For example, for a university, new enrolments and graduates can be considered stocks and the progression of new entrants to graduation a flow. Equations are developed describing changes in stocks and flows. These are programmed into a computer, and the unintended consequences of feedback loops over time can be better understood. This research used the software 'Vensim' version 7.3.5 (Ventana Systems inc, 2017).

Methods (2) Stakeholder Analysis

A stakeholder is any group or individual who can affect or is affected by a policy or activity (Bryson, 2004). Stakeholder analysis, the systematic identification of stakeholders, is an important as part of the applied sciences for two important reasons. Firstly, we have an ethical obligation to ensure fairness of the policy to all those affected. Secondly, stakeholders can influence the operation of a policy, and this needs to be taken into account in the design. Stakeholder analysis can be viewed as complementary to system dynamics. System dynamics is a somewhat mechanistic approach, stakeholder analysis provides the human touch.

However, this definition is too broad for practical purposes, and Mitchell et al suggest identifying key stakeholders on the basis of salience, and suggests three factors to consider: (1) power; (2) legitimacy; and (3) urgency (Mitchell, Agle, & Wood, 1997).

Limitations



As George Box cautioned, "*All Models are wrong, but some are useful*" (Box, 1979, p 2). Models are by necessity simplifications of a complex reality. The models developed and described here are for the research objects (s 1.3.2) is to illustrate the complexity of student attrition. The implications reduce the complications (i.e. factors that can be examined by reduction) in favour of emphasising inter-related feedback loops.

This paper draws data from the Australian Higher Education system. Other countries have different systems While other countries have somewhat different systems and educational cultures, we believe the underlying argument that there is a need to treat student attrition as a complex systems phenomenon is valid.

Analysis

Systems Dynamics

On the face of it a model of university student progression would be as a process which starts with their first class and end with their graduation. However, to understand this progression, it is more useful to extend the model in both directions, to the point of recruitment and selection, and the point of the student getting their first job³ (Bowser, Somasundaram, & Danaher, 2007). Selection is when the decision is made regarding the suitability of the student and the first job provides evidence of the success of the education.

Selection can be attributed to two factors -a potential student wanting to a particular career for which the degree is a pre-requisite (their motivation), and the university accepting the student (generally on the basis of their school grades as an indicator of the necessary skills).

Both motivation and skills have a component that individuals are born with and part that is shaped and learned after birth. Though there is a reluctance to admit it, assessment is not a very accurate science – school grades do not predict university success very well. A US Department of Education study reported the best assessments as able to predict about 43% of subsequent university grades (Adelman, 1999), while Australian studies show variation in predictability across disciplines (Somasundaram, Bowser, & Danaher, 2006).

The Australian government selects and reports on two characteristics as indicators of the graduate's employability: how quickly they get a job, and their starting salary (Social Research Centre 2019). Of course, employability also depends upon the demand for the profession, and this demand will depend upon market forces outside the consideration of this model (such as national economic growth), but also the supply of graduates available (which is relevant to our model).

Within university, we simplify attrition as occurring at two points – the first year or in subsequent years. Universities currently focus on the first, while it can occur at any time (s 1.1.6, point 3). It is useful to separate students into two groups, those with 'superior' skills and 'moderate' skills. Retention strategies typically apply resources to improve the retention of students with 'moderate' skills during their first year.

The intended consequence of improved progression is reduced attrition. We model two unintended consequences of the application of resources to improve first year progression of 'marginal' students. Firstly, as total university resources are limited, there is a reduction in general resources for teaching, causing some reduction in the progression of other students. Secondly, the increasing supply of graduates reduces demand. This reduction in demand for graduates reduces the motivation of 'superior' students to apply for the course/profession.

 $^{^3}$ By first job, we mean the first job that requires the skills of the discipline the student has graduated in. The Australian government measures and reports the time to get that job and the starting salary as success factors.

The above analysis resulted in a total of eight stocks, eleven flows and eight feedback loops. Equations were then develop to represent the interaction of the variables. While university operations are far more complex than the model, it is sufficient to demonstrate and act as a 'flight simulator' for policy makers and managers. Simple equations were written on the interactions between the variables. Further discussion of these equations is not provided due to lack of space, but readers are welcome to contact the authors to obtain further details.

Figure 2 below is a visual depiction of the model. The rectangles symbolise stocks, the double-edged arrows with a valve in the centre are flows, and the curved arrows are feedback loops. The model permits one variable, the funds allocated to retention to be varied using a slider, and three variables are charted.



Figure 2. Graphical depiction of systems dynamics model of student progression.

Stakeholders

Public institutions typically have significantly more stakeholders than private institutions. Universities receive their income from the government, students and benefactors. Policies tend to be multi-faceted and affect different parts of the country and people in different ways, often indirectly. Chapleo and Simms (2010), in a UK study, identified thirty distinct stakeholders for their university. Somasundaram, Howard, and Reed (2013), for an analysis specific to student attrition, developed a list of ten.

As the purpose of this research was to explore the complexity of student attrition, this research focuses on a few of the stakeholders identified in the development of the systems dynamic model, and explores how these can be further sub-divided to make explicit different, even conflicting goals.

Students are by far the biggest of the stakeholder groups. This model categorises students into two groups, 'superior' and 'moderate'. Individual goals will change as the student progresses through the system. A 'moderate' candidate would benefit from the improved acceptance rate and progression rate of 'moderate' freshmen, but then dislike the reduced teaching resources in their senior years as well as the increased competition from jobs caused by more graduates.

Universities have many different staff occupying different jobs affected differently. From a financial perspective, increasing progression rates increases university income. Staff in minority student support roles would see more minority students graduating. Within teaching staff, Simpson (2008) (citing Anderson (2003)) grouped teachers into two camps: 'Survivalists' and 'Remedialists'. Survivalists viewed their job as primarily setting the bar, the exam, and the job of the student is to pass it. Remedialists saw their role as helping and supporting the student to pass. Each will have different perspectives on progression strategies.

A third crucial stakeholder is the public. Even in countries with a high number of graduates, they are a minority, and while they partially pay for universities, do not directly benefit. A progression strategy would increase minority participation in higher education, a factor that is being increasingly acknowledged as crucial for social stability and equity.



Discussion

The complex nature of universities and their stakeholders makes creates policy resistance and unintended consequences. Different stakeholders will have different goals and perspectives and will subtly influence the policy, the action taken and results. In translating Institutional Research into action, there is a need to take a wider perspective of the system, and engage a wide group of stakeholders in policy formation.

From the analysis, several different tactics suggest themselves for improving student retention. Firstly, improving the accuracy of assessments would ensure that students with the greatest likelihood of graduating were recruited. Secondly, ensuring all students granted admission were competent independent learners would mean that 'moderate' students had the skills to manage their own study and efforts to successfully pass exams. Thirdly, university students learn and develop for an average of eighteen years before entering university. Spending resources on those early, critical years is likely to be more effective than playing catch-up in one year of retention support. Fourthly, universities should take greater responsibility for ensuring graduates move quickly into their first employment, reducing the risk of the over-supply of graduates. Fifthly, by designing university courses in a manner that ensures students who do not complete the full course nevertheless receive certificates or diplomas that provide employment that utilise the skills they have gained.

Conclusion

As society progresses into the twenty-first century, the human sciences are rapidly maturing and creating new tools to understand our complex society and institutions. Universities as the intellectual leaders of society have a responsibility to adopt these new tools in their own operations. Crucially, we need to adopt a life-cycle approach to education and better manage transitions from one stage to another.

Human society is complex, and well-intended policies often have unintended consequences. In turning Institutional Research into action, it behaves us to be both cautious and humble in our approach. Perhaps the right tactic is to apply a gentle touch to steer in the right direction, but allowing different stakeholders freedom to develop their own path within the broader framework. Perhaps, as Confucius put it, to seek a subtler yet greater harmony without demanding uniformity (和 而 不同) (Confucius, 2015, Analects 13:23).

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3_Paper6

Enhancing Mathematics Achievement Scores and Teamwork Skills through Student Teams-Achievement Divisions (STAD)

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ABSTRACT

Nowadays, more employers seek for graduates who are not only good in academics but give more preference on essential skills, especially the teamwork skills. Studies showed that emphasizing teamwork and cooperation can improve the way students learn mathematics. This study compared the effects of the Student Teams-Achievement Divisions (STAD) cooperative learning strategy and the Non-STAD cooperative learning strategy on the students' teamwork skills and mathematics achievement in high school. The study made use of two randomly chosen G10 sections under the K-12 EBEP curriculum who were given pretest and posttest using two validated instruments, the teacher-made test on grade 10 mathematics and the modified teamwork skills assessment tool adapted from the CATME-B Version. The study found that the students under the STAD cooperative learning strategy had significant gains in mathematics achievement and teamwork skills and showed consistent significant improvements in the six teamwork skills assessments over the span of eight weeks as compared to the Non-STAD group. Students exposed in the STAD cooperative learning strategy were better in giving a high- quality fair share of the team's work, kept commitments and worked cohesively with teammates, trusted each other and showed appropriate progress. Each member contributed to the team's excellent work and exhibited excellent knowledge, skills, and abilities in doing the team's work and in performing assigned roles In STAD, team scores were based on improvement scores, with recognition and rewards to the winning teams and improving students which results to higher achievement in mathematics and enhanced teamwork skills among students.

Keywords: Teamwork Skills, Soft Skills, Student Teams-Achievement Divisions (STAD), Cooperative Learning





Introduction

The development of the students' teamwork skills while learning mathematics content is paramount. These are essential skills needed by them to work successfully with others when they enter the workforce in this highly competitive world.

Team skills are among the most important skills desired by recruiters, yet employers and scholars perceive that team skills are frequently deficient in graduates (Loughry, et al, 2013). Capate (2015) cited the Department of Education (2013) stating that "Mathematics is one subject that pervades life at any age and in any circumstance. Thus, its value goes beyond the classroom and the school". Studies showed that emphasizing teamwork and cooperation can revolutionize the way kids learn math (Brown, 2017). As posted by Thomas (2018), "one of the Top 10 soft skills that students need to develop today is Teamwork. It is the most essential skill required at every stage of one's career. Working together will always help in producing more. Students must understand the importance of unity". Kendall (2011) quoted Hendrix (1996) declaring that "cooperative learning activities provide a foundation for instruction that increases positive interaction among students and allows them to explore and engage in learning. It is a strategy designed to meet both the cognitive and social need of learners in a diverse and complex society".

However, Strom and Strom (2011) stated that teamwork skills development is sometimes underestimated on the premise that schools are responsible to help students learn the subject matter but not the social skills. Also, considerable evidence claimed that there has been minimal research on directly observing student interactions during activities (Saunders, 2010). Most of the teachers just ignored the fact that in the usual group activities, only one or two individuals work hard for the group output. Some students are just free-riders. These students do not have a proportional share of the work and yet they enjoy the same marks of the group. Ohland, et al (2012) quoted Bacon, Stewart, & Silver (1999), Burdett (2003), et al, stating that teams often have problems, such as team members who work independently rather than collaboratively, poor communication, conflict, differences in team members' skills, motivation, and goal levels, and free-riding or social loafing.

Armstrong and Palmer (1998) mentioned Newman and Thomson (1987) who reported that STAD was the most successful cooperative learning technique at increasing student academic achievement but the bulk of the research on STAD had been conducted at the elementary level. Armstrong and Palmer (1998) further cited Slavin (1995) who stated that STAD consistently had positive effects on learning in many studies. However, he found that few studies examined the effects of STAD in the 7-12 grade levels.

There is a dearth in the study of Student Teams-Achievement Divisions (STAD) in junior high school, particularly in the Philippines. There have been no results on its effects and how it influences the students' teamwork skills.

In Misamis Oriental General Comprehensive High School (MOGCHS), most of the students were struggling in Mathematics. Based on the 2014-2015 National Achievement Test (NAT) result, MOGCHS had a Mean Percentage Score (MPS) of 37.93%. This MPS was closely similar in the previous school years. Evidently, the low achievement level in Mathematics is a recurrent problem not only in MOGCHS but also in many schools in Misamis Oriental Division and even in the country in general.

Hence, the researcher conducted a quasi-experimental pretest-posttest control group design which made use of the Student-Teams Achievement Divisions (STAD) cooperative learning strategy and the Non-STAD cooperative learning strategy, to compare its effect on the students' mathematics achievement and teamwork skills.

Theoretical and Conceptual Framework

This study was anchored on Vygotsky's Social Constructivism. It aimed to validate a theory that the use of STAD cooperative learning in the classroom instruction can influence the achievement scores of the students in mathematics. Kendall (2011) cited Powell and Kalina (2009) that "Vygotsky (1896-1934) based his work on the principle that knowledge is social and is constructed from cooperative efforts to learn, understand, and solve problems. Through scaffolding, Vygotsky posited that learning occurs more



effectively when students have others to support them". According to Vygotsky (1978), if at least one student in the group has a deeper understanding than the others, then he or she has the potential to scaffold the learning of other group members and deepen their understanding (Killen, 2016).

Another perspective outlining this study was the Social Interdependence Theory by Koffka, Lewin, Deutsch, and the Gestalt school of psychology. Kendall (2011) cited the following in her study: Cooperative Learning is partially based on the theory of social independence that grew out of the Gestalt school of psychology in the early 1900s (Johnson & Johnson, 1998). She cited further Johnson & Johnson (1998) stating that social interdependence exists when individuals work together to achieve a common goal and each group member ensures the success of the entire group by encouraging and assisting others. Slavin extended this theory to the study and development of several cooperative learning techniques for classroom use, one of which is the Student Teams Achievement Divisions (Kendall, 2011).

The other view related to the study was the Behavioral Learning Theory which focuses on the impact of group reinforcers and rewards on learning. "Skinner, the father of Operant Conditioning, stated that positive reinforcement (praise, rewards, etc.) strengthens behavior or increases the likelihood that the behavior will be repeated. Skinner believed that everything a person does is related to his or her prior experiences of punishment and reward and future behavior can be shaped by appropriate use of operant conditioning" (Sayegh, 2014).

The Big Five Theory developed by Salas et al. (2005), as cited by Strode (2015) was the other viewpoint related to the study. Strode (2015) detailed that "the Big Five teamwork theory is one of the most influential teamwork theories. It has five components and three coordinating mechanisms as follow: Adaptability, Backup behavior, Closed-loop communication, Mutual performance monitoring, Mutual trust, Shared mental models, Team leadership, and (8) Team orientation".

This study delved on the notion that the STAD cooperative learning helps improve the students' achievement scores in mathematics and at the same time develops the different teamwork skills of the students needed in our society today.

Statement of the Problem

This study sought to analyze the effects of using the Student Teams-Achievement Divisions (STAD) Cooperative Learning strategy to improve the mathematics achievement scores and the development of the teamwork skills of the Grade 10 MOGCHS students.

Specifically, this study aimed to answer the following questions:

What are the students' mathematics achievement scores and teamwork skills before and after the experiment?

How do the students' mathematics achievement scores compare as influenced by the STAD and Non-STAD Cooperative Learning Strategies?

How do students' teamwork skills compare as influenced by the STAD and Non-STAD Cooperative Learning Strategies?

What is the trend of the students' teamwork skills in the six teamwork skills assessments?

Methodology

The researcher used the quasi-experimental pretest-posttest control group design. In this study, the independent variables were the two cooperative learning strategies. The experimental group used the STAD cooperative learning strategy while the control group used the Non-STAD cooperative learning



strategy. The dependent variables were the achievement scores in mathematics and the five teamwork skills, namely: (1) *Positive Interdependence*- refers to the members' contribution to the team work positively, complete a fair share of the team's work with high quality, keep commitments, complete assignments on time and work cohesively with each other; (2) *Collaboration*- refers to the students' interaction with their teammates like showing an interest in teammate's ideas and contributions, improving communication among teammates, providing enthusiasm to the team, and asking and using feedback to improve; (3) *Interpersonal Relations*- refers to the team and making sure that the teammates show appropriate progress and trust each other; (4) *Individual Accountability*- refers to the individual member's contribution to the team to do excellent work, considering that he/she is responsible for the team's success; and (5) *Team Leadership*- refers to the ability of an individual to coordinate a group to perform a task successfully, have excellent knowledge, skills and abilities to do team's work and able to perform other roles if necessary. The pretest scores were the covariate.

The participants of this study were the Grade-10 students of Misamis Oriental General Comprehensive High School (MOGCHS), school year 2018-2019. Among the four sections handled by the researcher, two sections were randomly selected. One section was the experimental group and the other one was the control group with a class size of 51 and 48 students respectively. At the start of the experiment, the researcher formed the small intact groupings of the experimental group and the control group. The students were divided into heterogeneous groups of five members based on the random selection consisting of high, average or low performing students. The basis in the grouping was the first quarter grades.

In the Non-STAD group, the usual structure of cooperative learning was employed. The teacher gave a group activity after the lesson presentation and discussion; assigned a leader in each group to facilitate in doing the task given and to monitor the participation and the learning of the group members, and then required them to submit or present their group output. The whole group was given a uniform mark based on their final group output without examining the member's individual contribution to the output. In this group, members were given the tasks to be done and then the leader will assist. Different leaders were assigned per activity to give chance to others to act as leaders also. In the experimental or STAD group, unique features were added in the usual cooperative learning structure, namely: the use of pretest and posttest per topic to compute for the improvement score to calculate for the team score, the giving of recognition and rewards, and the rotating roles of the team members per topic. In this group, the team score was mainly based on the total improvement scores of all the team members. Hence, members worked both independently and collaboratively keeping in mind that their shared goals are accomplished best by mutual support.

The 28-item validated teacher-made test on topics in grade 10 mathematics was given to both groups as pretest and posttest for mathematics achievement. The items were based on the K-12 curriculum guide provided to public schools for grade 10 students. It was administered to the Grade 12 students of the University of Science and Technology of Southern Philippines (USTP) who had already undergone lessons on the topics mentioned above. The item analysis made yielded an interpretation skills reliability, Spearman-Brown Prophecy of 0.898. For teamwork skills, the teamwork skills assessment tool adapted with modifications from the CATME-B Version developed by Ohland, Loughry, Woehr, et al (Academy of Management Learning & Education, 2012) was used as pretest and posttest. This revised teamwork skills assessment tool was validated in one of the grade 10 Science, Technology and Engineering (STE) classes in Misamis Oriental General Comprehensive High School. Its interpretation skills reliability, Cronbach's Alpha, was 0.839. Moreover, to know the trend of the students' teamwork skills, both groups did the teamwork skills assessment six times. This was done after the completion of each major topic in a span of 1.5 weeks per topic. Students' assessment was the average of self-assessment and peerassessment per teamwork skill. The data gathered in the achievement scores and teamwork skills were analyzed using the mean, standard deviation and descriptive rating, and the One-way Analysis of Covariance (ANCOVA).



Results

To determine the students' mathematics achievement scores before and after the experiment, the mean and standard deviation of the students' achievement test scores in grade 10 mathematics are shown in table 1 below.

		Mathematics		
	Experime	ental Group	Contro	l Group
	Pretest	Posttest	Pretest	Posttest
Mean	6.92	19.98	6.40	18.15
Standard	2.07	2.55	2.22	3.43
Deviation				

Table 1. Mean and Standard Deviation of Students' Achievement Test Scores in G10Mathematics

As presented in table 1, the pretest mean of the 2 groups had a difference of 0. 52 in favor of the experimental group. The proficiency level is at the beginning level as described by the performance appraisal system of DepEd. As to the variability in the pretest, the SD of the control group is higher by 0.15. This means that the scores of the students in both groups have a similar spread.

In the posttest, the experimental group has a higher mean compared to the control group by 1.83. The proficiency level of the experimental group is now proficient, while the control group is approaching proficiency. As to the variability of the achievement scores in the posttest, the experimental group has lesser dispersion than the control group. The result reveals that the experimental group has increased their scores with less dispersion, while in the control group, the scores are more dispersed.

To test for significant difference in the posttest, further analysis was done using One-Way Analysis of Covariance (ANCOVA) with pretest as the covariate.

Source	SS	df	MS	F/	Р
Adjusted Means	82.9	1	82.9	9.06	0.003*
Adjusted Error	878.78	96	9.15		
Adjusted Total	961.68	97	I Pr		
* : : : : : : : : : : : : : : : : : : :					

Table 2. Summary Table of One-Way AN	NCOVA of Mathematics Achievement Scores

*significant at 0.05 level

Table 2 shows the result of the one-way Analysis of Covariance of the students' achievement scores in grade 10 mathematics. The analysis yielded an F-ratio of 9.06 and a p= 0.003, that is, less than the 0.05 level of significance. The result led the researcher to reject the null hypothesis that there is no significant difference in the students' mathematics achievement scores as influenced by the STAD and NON-STAD Cooperative Learning Strategies. This implies that the students in the experimental group who were exposed to STAD cooperative learning strategy had significantly improved their mathematics achievement compared to those who were exposed to NON-STAD cooperative learning strategy is better than the conventional or the usual small-group work cooperative learning strategy in improving mathematics performance of students.

Table 3 displays the mean, standard deviation, and descriptive rating of the students' assessments on their teamwork skills.

Table 3. Mean, Standard Deviation and Descriptive Rating of the Pretest and Posttest of the



Students' Assessments on Teamwork Skills									
Experimental Group Control Group									
Pretest	Posttest	Pretest	Posttest						
3.28	4.46	3.53	4.2						
0.47	0.35	0.46	0.44						
Average	High	High	High						
3.47	4.5	3.32	4.32						
0.45	0.36	0.42	0.43						
Average	Very High	Average	High						
3.33	4.46	3.17	4.09						
0.46	0.41	0.41	0.48						
Average	High	Average	High						
3.43	4.51	3.37	4.08						
0.45	0.34	0.42	0.57						
Average	Very High	Average	High						
3.33	4.53	3.4	4.09						
0.51	0.39	0.4	0.45						
Average	Very High	Average	High						
	AssessmentsExperime Pretest3.28 0.47 Average3.47 0.45 Average3.33 0.46 Average3.43 0.45 Average3.43 0.45 Average3.51 Average	Assessments on Teamwork SkExperimental Group PretestPretestPosttest 3.28 4.46 0.47 0.35 AverageHigh 3.47 4.5 0.45 0.36 AverageVery High 3.33 4.46 0.46 0.41 AverageHigh 3.43 4.51 0.45 0.34 AverageVery High 3.33 4.53 0.51 0.39 AverageVery High	Experimental Group PretestContro Pretest 3.28 4.46 3.53 0.47 0.35 0.46 AverageHighHigh 3.47 4.5 3.32 0.45 0.36 0.42 AverageVery HighAverage 3.33 4.46 3.17 0.46 0.41 0.41 AverageHighAverage 3.33 4.46 3.17 0.46 0.41 0.41 AverageHighAverage 3.43 4.51 3.37 0.45 0.34 0.42 AverageVery HighAverage 3.33 4.53 3.4 0.51 0.39 0.4 AverageVery HighAverage						

*C***1111**

The teamwork skills scores were derived from the average of the students' self-assessment and peer assessments. In the pretest, the differences of the mean in each teamwork skill for both groups is minimal. Both groups are comparable in the teamwork skills before the experimental period. The descriptive rating in all the experimental group's teamwork skills was average, while that of the control group was high in Positive Interdependence and average in Collaboration, Interpersonal Relations, Individual Accountability, and Team Leadership. As to the variability of the responses, the experimental and control groups' standard deviation has a minimal difference. This means that the ratings of the students in the two groups have a similar dispersion.

After the treatment, the experimental group had a higher mean in each of the five teamwork skills compared to the control group. The descriptive ratings in the experimental group were very high in collaboration, individual accountability and team leadership, and high in positive interdependence and interpersonal relations. In the control group, the descriptive ratings were high in all the five skills. As to variability of the students' ratings, the experimental group had lesser dispersion than the control group.

To determine if there is a significant difference in the students' teamwork skills, further analysis was done using One-Way Analysis of Covariance (ANCOVA). The result is presented in table 4.

Source	SS	df	MS	F	Р
Positive Interdependence					
Adjusted Means	2.28	1	2.28	15.52	0.00*
Adjusted Error	14.11	96	0.15		
Adjusted Total	16.9	98			

Table 4. Summary Table of One-Way ANCOVA of the Students' Teamwork Skills

Collaboration					
Adjusted Means	0.57	1	0.57	3.76	0.06
Adjusted Error	14.54	96	0.15		
Adjusted Total	16.21	98			
Interpersonal Relations					
Adjusted Means	2.46	1	2.46	13.58	0.00*
Adjusted Error	17.37	96	0.18		
Adjusted Total	22.53	98			
Individual Accountability					
Adjusted Means	4.29	1	4.29	19.94	0.00*
Adjusted Error	20.66	96	0.22		
Adjusted Total	25.31	98			
Team Leadership					
Adjusted Means	5.12		5.12	30.41	0.00*
Adjusted Error	16.15	96	0.17		
Adjusted Total	22.01	98			
*significant at 0.05 level					

The analysis in table 4 yielded a p< 0.001 on the four teamwork skills namely: Positive Interdependence, Interpersonal Relations, Individual Accountability, and Team Leadership. This means that there is a significant difference in the students' teamwork skills on these subskills. This led the researcher to reject the null hypothesis that there is no significant difference in the students' teamwork skills as influenced by the STAD and Non-STAD Cooperative Learning Strategies. This implies that the students in the experimental group who were subjected to STAD cooperative learning strategy had significantly improved their teamwork skills on Positive Interdependence, Interpersonal Relations, Individual Accountability, and Team Leadership.

However, the result of the students' teamwork skills on Collaboration yielded a p=0.06. The probability value is slightly higher than the 0.05 significance level. This means that there is no significant difference in the students' teamwork skills in Collaboration. This result failed to reject the null hypothesis that there is no significant difference in this teamwork skill as influenced by the STAD and Non-STAD Cooperative Learning Strategies. Therefore in Collaboration, the two groups are comparable. The use of STAD cooperative learning strategy is better than the Non-STAD cooperative learning strategy in improving academic achievement as well as teamwork skills of Grade 10 high school students.

To determine the trend of the students' teamwork skills within the treatment period, a total of six teamwork skills assessments were conducted. The assessment was done after the completion of each major topic in a span of 1.5 weeks per topic. The mean and standard deviation in each of the six assessments on teamwork skills are presented in table 5.

Table 5. Mean and Standard Deviation of the Students?	Six Assessments	on their	Teamwork
Skills			

	Assess 1		Assess 1 Assess 2 A		Asse	ssess 3 Assess 4		Assess 5		Assess 6		
	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
Positive Interdependence												
Mean	4.23	4.01	4.31	4.01	4.42	4.08	4.28	4.15	4.38	3.86	4.46	4.20
SD	0.49	0.60	0.47	0.52	0.43	0.65	0.48	0.57	0.45	0.62	0.35	0.44



Collaboration												
Mean	4.29	3.94	4.41	4.01	4.40	4.03	4.35	4.05	4.34	3.80	4.50	4.32
SD	0.48	0.59	0.48	0.52	0.43	0.64	0.50	0.49	0.47	0.57	0.36	0.43
Interpersonal Relations												
Mean	4.15	3.81	4.23	3.83	4.44	4.28	4.23	3.93	4.33	3.82	4.46	4.09
SD	0.57	0.58	0.46	0.63	0.42	0.42	0.50	0.49	0.49	0.51	0.41	0.48
Individual Acco	ountabi	lity										
Mean	4.26	4.18	4.28	4.05	4.30	3.98	4.34	4.11	4.35	3.84	4.51	4.08
SD	0.43	0.53	0.42	0.55	0.49	0.59	0.51	0.56	0.49	0.65	0.34	0.57
Team Leadersh	ip											
Mean	4.21	3.96	4.24	4.11	4.23	3.86	4.20	4.04	4.42	3.81	4.53	4.09
SD	0.49	0.63	0.49	0.53	0.47	0.69	0.51	0.56	0.50	0.54	0.39	0.45

(EG – Experimental Group; CG – Control Group)

The trend of the students' positive interdependence skill is increasing. It significantly improved at the end of topic 6 with constant progress at the end of topics 1, 2 and 5. In collaboration, it improved significantly at the end of topic 6 with constant progress at the end of every topic. In interpersonal relations, the students had significantly improved at the end of topics 3 and 6 with constant progress at the end of topics 1, 2, 4 and 5; and also at the end of topics 2, 4 and 5. In individual accountability, the students had significantly improved in this skill at the end of topic 6 with constant progress at the end of topics 2, 3 and 5. As to team leadership, the result shows that the students had significantly improved in this skill at the end of topics 2, 3 and 5. Further analysis on comparing the trends between the groups revealed that the STAD cooperative learning group showed consistent significant improvements in the six teamwork skills assessments over the span of eight weeks as compared to the Non-STAD group. Students exposed in the STAD cooperative learning strategy were better in the member's high- quality fair share of the team's work, kept commitments and worked cohesively with teammates, trusted each other and showed appropriate progress. Each member contributed to the team's excellent work and exhibited excellent knowledge, skills, and abilities in doing the team's work and in performing assigned roles

This study encouraged the students' independence and team learning, developed individual and group accountability, practiced and developed different teamwork skills, and improved their achievement scores in mathematics. They became more aware of their responsibility in enhancing their teamwork skills while learning the mathematics content.

Conclusions and Recommendations

Based on the findings of the study, the Student Teams-Achievement Divisions (STAD) Cooperative Learning Strategy is better than the Non-STAD cooperative learning strategy in enhancing students' mathematics achievement and is more effective in enhancing students' teamwork skills, specifically on positive interdependence, interpersonal relations, individual accountability, and team leadership. This approach encouraged the students' independence and team learning, developed individual and group accountability, practiced and developed different teamwork skills, and improved their achievement scores in mathematics. They became more aware of their responsibility in enhancing their teamwork skills while learning the mathematics content.

High School mathematics teachers may employ the Student Teams-Achievement Divisions (STAD) Cooperative Learning Strategy in teaching mathematics to increase both the mathematics achievement and teamwork skills of the students. It is found to be better than the conventional small group cooperative learning strategy, especially in controlling common team problems like free-riders in a group. Thus, ensuring maximum participation of each team member. School administrators may provide opportunities for the dissemination of the research result and the proper employment of the STAD



cooperative learning strategy to high school teachers in mathematics and to recommend it in their classes to help the students improve both their mathematics achievement and teamwork skills. Further studies may be conducted to investigate the effectiveness of STAD cooperative learning strategy in the development of the students' teamwork skills with a wider scope using different population, setting and time. It may be conducted to more grade levels especially the heterogeneous classes for the whole school year and analyze the result every grading period.

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Factors Influencing Pell Grants Recipients' Academic Success

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ABSTRACT

Pell Grants are awarded to students from low-income families in America. The federal government of the United States has spent significant resources to support Pell recipients with the goal of improving the socioeconomic status for this group through increased their academic success. As such, student academic performance has drawn nationwide attention. Traditional key indicators of academic performance are retention and graduation rates. This study explored beyond these two traditional measures towards factors that may influence Pell recipients' persistence in their third fall as a "bottleneck" along with the factors that played an important role towards graduation. This study focused on the fall 2012 first-time, full-time, degreeseeking students at a flagship state university who were awarded Pell Grant. There was a total of 4,578 students in the adjusted cohort of fall 2012 at this university. Stepwise logistic regression was used to select the significant influential factors in the study. Of the 4,578 students, 3,251 students were included in the stepwise logistic regression model. Of the students in the model, 613 students were Pell Grant recipients, and 2,638 were non-Pell Grant recipients. Then the factors were employed to predict students' graduation status. According to the odds ratio, the graduation rate of Pell Grant recipients was 24% lower than the rate of non-Pell Grant recipients. Based on the results of the analysis, cumulative GPA at the end of the first academic year, as well as the number of English and math courses taken were the most significant factors that positively impacted student graduation. The study results emphasized the importance of students' first two years of academic study, especially their learning experiences with English and Math courses.





Introduction

Graduation Rate

The Integrated Postsecondary Education Data System (IPEDS) is a system of interrelated surveys conducted annually by the National Center for Education Statistics (NCES), a part of the Institute for Education Sciences within the United States Department of Education ("IPEDS", 2019). IPEDS requires that each institution of this country has to report its graduation rate. Otherwise, the institution will lose its financial aid sponsored by the federal government.

How does IPEDS define the graduation rate? First, each institution has to label the students who are first-time, full-time, and degree-seeking students in each fall semester, as the cohort. Although students should complete their bachelor's degrees within four year, IPEDS allows the students to complete their bachelor's degrees within six years. As long as the students fulfill all requirements of a bachelor's degree within six years, the students are eligibly counted in the numerator for calculating the graduation rate. Therefore, graduation rate is calculated by the ratio between the degree recipients (numerator) within six years to total students in the cohort (denominator).

Student academic performance, especially their graduation rates, is a key indicator of student success. Nationwide, the six-year graduation rate at four-year institutions is around 60% based on the latest information from National Center for Education Statistics. The rate was 59% at state institutions, 66% at private nonprofit institutions, and 26% at private for-profit institutions (U.S. Department of Education, 2018).

Huang, Roche, Kennedy, and Brocato (2017) observed that most research divides factors that affect graduation success rate into three categories: demographic factors, pre-college factors, and sociological factors. In additional to these factors, the authors also investigated how factors such as college major, student's home address, and student's use of learning support, affect a student's likelihood of graduating within six years. Chatterjee, Marachi, Natekar, Rai, and Yeung (2018) identified that total credits accumulated at the end of first year and retention at the beginning of sophomore year both have significant positive effects on graduation success.

Pell Grants

Pell Grants are awarded to students from low-income families who are either American citizens or permanent residents. The federal government has provided significant resources to support Pell Grant recipients, with the goal of improving socioeconomic status of recipients by improving their opportunities for academic success. As such, academic performance of Pell Grant recipients has drawn nationwide attention. Traditional key indicators of academic performance are retention and graduation rates, with retention rate usually being defined as persistence in the fall term of sophomore year.

Although most Pell Grant recipients come from families with annual income less than \$20,000, students coming from families with annual income up to \$50,000 may also be eligible ("Federal Pell Grants", 2019). Since 1972 when the Pell Grant program was created, the federal government has contributed significant funding to the program. In 2007-2008, recipients totaled 5.5 million students, with an annual program expenditure of \$14.7 billion; in 2011-2012, recipients totaled 9.7 million, with an annual program expenditure of \$33.4 billion (Mullin, 2013). With program expenditures totaling hundreds of billions of dollars per decade, efficiency of the program, in particular, rate of successful outcome for recipients of Pell Grant, draws interest from politicians, educators, and economists.



Statement of the Problem

This study focused on first-time, full-time, degree-seeking Pell Grant recipients who matriculated at a flagship state university in the fall 2012. The six-year graduation rate of the overall cohort at the university was determined to be 77%, and the corresponding rate for Pell Grant recipients was determined to be 69%. Since the Pell Grant recipients were part of the overall cohort, the present study sought to understand and determine the factors that influence graduation rates of Pell Grant recipients. Furthermore, the present study was intended to ascertain whether the recipients faced more challenges compared with their fellow students who were not recipients of Pell Grant. These were two research objectives of this study.

Framework of the Study

Participants

There was a total of 4,578 students in the adjusted cohort of 2012 at this university. Of the 4,578 students in the cohort, 862 students were awarded Pell Grants. Since not all students had data for all the independent variables used to predict their graduation, the analytical models only included the students who possessed all variables in the model. Of the 4,578 students, 3,251 students were included in the model. Of the students in the model, 613 students were Pell Grant recipients, and 2,638 were non-Pell Grant recipients.

Dependent Variable and Independent Variables

The dependent variable was whether the 3,251 students had obtained a bachelor's degree within sixyear. The independent (explainer) variables included five separate categories: demographic related information, social economic status, college preparedness, major, and academic performance.

Demographic related information. SEX (male or female) and RACE (underrepresented minority or not). If a student's race was neither white nor Asian, the student was coded as underrepresented minority. Otherwise, the student was not underrepresented minority.

Social economic status. The status of a student as a first-generation college student $(_1^{ST}_GEN)$ was coded as one, otherwise it was coded as zero. If a student in the cohort was awarded Pell Grant in one of the semesters between fall 2012 and summer 2013, the student was a Pell Grant recipient. Since most students kept roughly same family financial situation, the aid would be kept within 6-year period. The status of a student as a recipient of Pell Grant (PELL) was coded as one, otherwise it was coded as zero.

College preparation. SAT score is an important indicator of college preparation. Since students in the cohort of 2012 used the SAT format revised in 2005 to apply to the university, the sum of the scores for SAT reading and math sections were used for this study. If the students had submitted their ACT scores instead of SAT scores, their ACT scores were converted to SAT scores based on concordance provided by the College Board.

Student major. If the student's major was one of the STEM (science, technology, engineering, and mathematics) majors, it was coded as one, if not, it was coded as zero.



Academic performance. Student academic performance played a very important role in determining whether they would be retained in their junior year, and eventually graduate within six years. Specifically, the factors included:

- Cumulative GPA at the end of the first academic year;
- Persistence to the second fall;
- Number of Math courses taken;
- Number of English courses taken;
- Course credits earned from of all English courses taken;
- Course credits earned from all Math and Statistics courses taken;
- Points converted by course credits earned from freshmen seminar (UNIV-101); a value of "-1" was assigned when a student choose not to take the seminar; and
- The number of the six identified STEM courses a student needed to retake. These six courses were indicated in Table 1 following page. Out of all students in the cohort, 2,202 students (representing 48% of the cohort) repeated at least one of the six identified courses. For instance, 898 of the 2,202 students took one of the six courses, 497 took two of the six. The 2,202 students had total 4,772 enrollment records of the six courses. For example, 1,210 students took CHEM-111 (General Chemistry) twice, 500 students took MATH-141(Calculus I) three times. The descriptive statistics of the six STEM courses were presented in Table 1. Therefore, a student who did not retake any of the six identified STEM courses was assigned a count of zero. For each of the six STEM course repeated, a student received one count. The sum of the number of courses repeated was used in the model.

In order to avoid generation of an overfitting model, stepwise logistic regression was used to select the influential factors. The model derived from the present study, including factors employed to predict graduation attainment, may be applied toward future matriculating cohorts. Specifically, the most noteworthy factors identified by the model during the present study included: whether a student was a Pell Grant recipient, whether a student was a first-generation college student, student GPA at the end of the first year, count of six identified STEM courses a student needed to retake, the number of English classes taken, and the number of mathematics courses taken.

Course	Course Title	Sum of Enrollment	Enrollment Time							
	$\langle \langle \mathcal{O} \rangle \rangle$	Time of Each Course	2	3	4	5	6	7	8	9
CHEM-111	General Chemistry	1,314	1,210	30	67	6	1	0	0	0
BIOL-101	Biological Principles I	967	785	152	26	3	0	1	0	0
CHEM-112	General Chemistry	708	28	633	32	5	10	0	0	0
MATH-141	Calculus I	640	9	500	46	5	70	6	0	4
GEOL-101	Intro to the Earth	597	597	0	0	0	0	0	0	0
BIOL-102	Biological Principles II	546	505	36	3	2	0	0	0	0
Summary		4,772	3,134	1,351	174	21	81	7	0	4

Table 1. Repeat Enrollment of Six STEM Courses

Methodology

Logistic Regression and Stepwise Regression

Agresti (2007) defined logistic regression as

$$\pi (\mathbf{x}) = \frac{\exp(\alpha + \beta x)}{1 + \exp(\alpha + \beta x)} = \frac{e^{\alpha + \beta x}}{1 + e^{\alpha + \beta x}}$$



Agresti (2007) said "the random component for the (success, failure) outcomes has a binomial distribution. Whereas π is restricted to the 0-1 range, the logit can be any real number. The real numbers are also the potential range for the linear predictors (such as $\alpha + \beta x$) that form the systematic component of the GLM (general linear model), so this model does not have the structural problem that the linear probability model has" (p. 71).

Statisticians (e.g., Myers, 1989) described "Stepwise regression provides an important modification of forward selection in that, at each stage of selection, all repressors currently in the model are evaluated through the partial F-test. A preselected F_{out} critical value is used" (p.187). Similarly, Stokes, Davis, and Koch (1995) indicated "Odds ratio compares the odds of the yes proportion for the Group 1 to the odds of the yes proportion for the Group 2" (p. 28). It is defined as following:



This study employed odds ratio to compare the graduation rates of the students with Pell Grant to the students without Pell Grant.

Analytical Methods

Model. The explainer variables mentioned above were employed to predict students' graduation status. The logistic regression was used to test whether Graduation is jointly independent of the explainer variables simultaneously. $H_0: \beta_1 = \beta_2 = ... = \beta_i$, for i = 11. A data set is typically deemed to be statistically significant if the probability of the phenomenon being random is less than 1/20, resulting in a *p*-value of 0.05 ($\alpha \le 0.05$). All selected variables must meet the criteria. PROB (GRADUATION = 1|(x)) = λ ($\alpha + \beta_1$ sex X₁ + β_2 race X₂ + β_3 sAT_2005 X₃ + β_4 ENGL_POINT X₄ + β_5

PROB (GRADUATION = 1|(x)) = λ (α + β 1 sex X_1 + β 2 race X_2 + β 3 sat_2005 X_3 + β 4 engl_point X_4 + β 5 MATH_POINT X_5 + β_6 engl_count X_6 + β_7 math_count X_7 + β_8 gpa_1st_year X_8 + β_9 _1st_gen X_9 + β_{10} peil X_{10} + β_{11} 6_stem_course X_{11})

Multicollinearity. Multicollinearity is a common problem when estimating linear or generalized linear models, including logistic regression. It occurs when there is high correlation among explainer variables. Considering this issue, some variables had been removed. BACK_3RD_FALL and MAJOR_CHANGE_3RD_FALL variables represented whether a student returned the fall of their third year (junior year), and whether a student changed majors their third fall semester (junior year) are highly correlated to Cumulative GPA at the end of the first academic year. Therefore, they were not included in the model.

Confusion matrix and contrast comparison. The confusion matrix is a method that compares the observed graduation status to the status from the fitted model. For example, the function could be used to identify students who did not graduate and were predicted not to graduate by the model. The contrast comparison function contrasts a specific explainer variable change, either positive or negative direction, while holding other explainer variables constant. The function presents results of dependent variable change with the specific explainer variable change.

Results

Model of Graduation and Test Hypothesis



Model of graduation. Of the 11 explainer variables in the model, six were selected by the fitted model. Six hundred thirteen students (28.85%) were Pell Grant recipients in the fitted model. Of the 613 Pell Grant recipients, 190 students (30.99%) were also first-generation. In the fitted model, 1,638 (50.38%) students did not retake the six STEM courses. For the rest of students, they retook at least one of the courses. The descriptive statistics of the six selected variables were presented in Table 2.

Variable	N	Moon	Min	Moy	25th	50th	75th	Std
v allable	1	Mean	an Min Max		Pctl	Pctl	Pctl	Dev
GPA_1ST_YEAR	3251	3.288	0	4	2.976	3.387	3.734	0.572
ENGL_COUNT	3251	2.235	1	22	1.000	2.000	2.000	1.802
MATH_COUNT	3251	2.453	1	19	1.000	2.000	3.000	1.696
6 STEM Courses	3251	1.061	0	5	0.000	0.000	2.000	1.369

Table 2. Statistics of GPA at 1st Year, Counts of English and Math Course, and 6 STEM Courses Retaken

Average GPA at the end of the first year was 3.288; average counts of English and math courses taken were 2.235 and 2.453. Since 50.38% students did not retake any of the six STEM courses, the average count of retaking the six STEM courses was 1.061, of which the average diluted the importance of the variable. Based on the analysis, it was the variable that predicted students' graduation.

As indicated in Table 3, GPA at the end of the first year, the number of mathematics courses taken, and the number of English courses taken had positive effects on graduation. Since the coefficient of the number of mathematics courses taken was 0.4460, and the coefficient of English was 0.2561, the mathematics courses presented stronger impact on deciding whether the students can graduate in comparison with the English courses. Therefore, larger values of these three explainer variables suggest higher probability of graduation. However, a negative coefficient was observed for each of the three following variables: count of six STEM courses a student needed to retake, indication that a student was the recipient of Pell Grant, and indication that a student was a first-generation college student. The coefficients of any these three explainer variables were negative toward graduation. Smaller values of the three coefficients suggest less probability of graduation. The following six explainer variables in Table 3 were equally applicable to the prediction of graduation rate of either Pell Grant recipients or non-Pell Grant recipients. When the rate of Pell Grant recipients needs to be predicted, PELL variable equaled to one. However, when the rate of non-Pell grant recipient needs to be predicted, PELL equaled to zero.

		and the second se				
Deremeter	DF	Estimate	Standard	Wald Chi-	Pr>ChiSq	
rarameter		(Coefficients)	Error	Square		
Intercept	1	-3.3585	0.2982	126.8089	<.0001	
GPA_1ST_YEAR	1	1.0771	0.0797	182.5966	<.0001	
MATH_COUNT	1	0.4460	0.0470	90.0252	<.0001	
ENGL_COUNT	1	0.2561	0.0459	31.0763	<.0001	
6_STEM_COURSE	1	-0.1005	0.0355	8.0188	0.0046	
PELL	1	-0.2673	0.1189	5.0537	0.0246	
_1ST_GEN	1	-0.3822	0.1416	7.2860	0.0069	

Table 3. Analysis of Maximum Likelihood Estimates for Pell Grant Recipients

Three variables including GPA in the first year, first-generation student, and Pell grant recipient, confirmed the long-held assumption of education professionals nationwide (Chatterjee, Marachi, Natekar, Rai, & Yeung, 2018; Conefrey, 2017; Morrison, 2012). However, the number of math and English courses taken separately, as well as the six STEM courses taken repeatedly were selected and emphasized by this model. The graduation model can be written as followed:



 $\begin{array}{l} PROB \left(GRADUATION=1|(x)\right)=\lambda \left(\alpha + \beta_{1ENGL_COUNT} \ ENGL_COUNT + \beta_{2MATH_COUNT} \ MATH_COUNT \\ + \ \beta_{3} \ _{GPA_1ST_YEAR} \ GPA_1^{ST}_YEAR \ + \ \beta_{-4} \ _{_1ST_GEN} \ _1^{ST}_GEN \ + \ \beta_{5} \ _{Pell} \ PELL \ + \ \beta_{6} \ _{6_STEM_COURSE} \\ 6_STEM_COURSE) \end{array}$

Test hypothesis. Global Null Hypothesis: $\beta = 0$ was tested. This logit model was statistically significant. The reported likelihood-ratio (LR) tests that GRADUATION was jointly independent of the predictors simultaneously; $\beta_1 = ... = \beta_i = 0$, for i = 6. The LR test statistic of 399.9705 was chi-squared (χ^2) with 6 degrees of freedom and *p*-value <0.0001. In addition, all predictors of GRADUATION were statistically significant as their *p*-values are less than 0.05, as shown in Table 3. Hosmer and Lemeshow Goodness-of-Fit Test also provided additional evidence the model fits the data well since p > 0.05 ($\chi^2 = 14.3564$; df = 8; p=0.0729).

The fitted model applied. For the sake of making the above formula more meaningful, the coefficients in Table 3 were plugged into in the model above. The formula calculation was as following:

PROB (GRADUATION =1|(x)) = λ (-3.3585 + 0.2561 ENGL_COUNT + 0.4460 MATH_COUNT + 1.0771 GPA_1ST_YEAR - 0.3822 _1ST_GEN-0.2673 PELL-0.1005 6_STEM_COURSE)

Suppose a Pell Grant recipient took two math and two English courses. The student's first-year GPA was 3.000 and repeated two of the six STEM courses. The student was not a first-generation student, who was counted 69% of overall Pell Grant recipients. The probability of earning a degree within six-year was

PROB (GRADUATION =1|(x)) = λ (-3.3585 + 0.2561 X 2 + 0.4460 X 2 + 1.0771 X 3 - 0.3822 X 0 - 0.2673 X 1-0.1005 X 2) = λ (-3.3585 + 0.5122 + 0.892 + 3.2313 - 0 -0.2673 - 0.201) = λ (0.8087) π (x) = $\frac{e^{0.8087}}{1 + e^{0.8087}}$ = 69.18%

The calculation above indicated that the Pell Grant recipients had 69.18% chance of graduation in the fitted model, which was almost as same as the rate observed. However, if this student was also a first-generation college student and holding the other four variables constant, the probability of graduation rate for a Pell Grant recipient and a first-generation student was down to 60.50%

PROB (GRADUATION =1|(x)) = λ (-3.3585 + 0.2561 X 2 + 0.4460 X 2 + 1.0771 X 3 - 0.3822 X 1 - 0.2673 X 1-0.1005 X 2)

$$= \lambda \left(-3.3585 + 0.5122 + 0.892 + 3.2313 - 0.3822 - 0.2673 - 0.201\right) = \lambda \left(0.4265\right)$$
$$\pi \left(x\right) = \frac{e^{0.4265}}{1 + e^{0.4265}} = 60.50\%$$

This calculation was based on the student's first-year GPA being 3.000. If the student's GPA was below 3.000, then the chance of graduation became even smaller. Evidently, the first-year GPA contributed to the largest positive weight to graduation.



When students were neither Pell Grant recipients nor first-generation students, who took two math and two English courses, had a first-year GPA of 3.288, and did not retake any the six STEM courses, their graduation rate was

PROB (GRADUATION =1|(x)) =
$$\lambda$$
 (-3.3585 + 0.2561 X 2 + 0.4460 X 2 + 1.0771 X 3.288)
= λ (-3.3585 + 0.5122 + 0.892 + 3.5415) = λ (1.5872)
 π (x) = $\frac{e^{1.5872}}{1 + e^{1.5872}}$ = 83.03%

The six-year graduation rate of this group was 83.03%. It was not only higher than the students who had been awarded Pell Grant and first-generation college students, of which the rate was 60.50%; but higher than Pell Grant recipients who were not first-generation college students, of which the rate was 69.18%.

Interpretation using probabilities and odds ratio. Morrison (2012) indicated that it is not easy to interpret the above statistics, since the coefficients are quite different from ordinary least squares. Because dichotomous probability is a 0 or 1 outcome that is a nonlinear function of the logit, and because the logit coefficient indicates how much the logit increases for ONE unit of change in the explainer variable, the statistics may be more easily interpreted by converting the logit coefficients into odds ratio.

As discussed previously, six explainer variables were significant in predicting graduation rate. Table 4 in page 8 presents how GPA at the end of the first-year affect graduation rate for Pell Grant and first-generation college students, while holding other explainer variables constant. If a student was a Pell Grant recipient and first-generation, while holding other explainer variables constant, the student's graduation rate was 87.90% when the first-year GPA equaled to 4.000, and the rate was down to 80.90% where the GPA was 3.500.

Contrasting with the fitted model discussed early, odds ratio focuses on comparing outcomes of one explainer variable instead of all explainers selected. Therefore, it offers more intuitional and easily interpreted results. As discussed in Methodology section above, odds = $e^{\beta i}$. In the fitted model the coefficient of PELL equal to -0.2673, or $\beta_{5 \text{ PELL}} = -0.2673$. Therefore, its odds ratio equal to $e^{-0.2673} = 0.76$.

Holding all other variables constant, the probability that a Pell Grant recipient would graduate was 23.45% (1 - 0.7654) less than the probability for a student who did not receive a Pell Grant. Applying the same methodology, $\beta_{4_{-1}ST_GEN} = -0.3822$. Its odds ratio equaled to $e^{-0.3822} = 0.6824$. Holding all other variables constant, the probability that a first-generation college student would graduate was 31.76% (1- 0.6824) less than the probability for a student who is not a first-generation college student. The odds ratios were consistent with the coefficients from the fitted model though they were shown in different ways. Students receiving Pell Grants and first-generation college students need to be extensively supported so that they can attain their degrees.

Confusion Matrix

In Table 5 in page 8, 2,543 students were in the group of fitted (_INTO_=1) and observed (_FROM_=1), and 115 students were in the group of fitted (_INTO_=0) and observed (_FROM_= 0). Therefore, the accuracy rate of this model was $\frac{2543+115}{3251} = 81.76\%$. The 537 students whom the model predicted would graduate but did not actually graduate were classified in the potentially 'at-risk' group. The 56 students whom the model predicted would not graduate but in fact did graduate were classified in the 'learning group' (Chatterjee, Marachi, Natekar, Rai, & Yeung, 2018). The meaning of this analytical method was to identify students who were predicated to graduate within six-year based on the model but did not actually graduate.



Contrast	Estimate	Standard	Alpha	Confidence Limits		Wald Chi-	Pr > ChiS
		Error				Square	q
GPA_1ST_TERM=2.500	0.590	0.043	0.050	0.503	0.672	4.128	0.042
GPA_1ST_TERM=3.000	0.712	0.041	0.050	0.625	0.785	20.411	<.0001
GPA_1ST_TERM=3.500	0.809	0.035	0.050	0.731	0.868	40.802	<.0001
GPA_1ST_TERM=4.000	0.879	0.027	0.050	0.815	0.923	60.234	<.0001

Table 4. Contrast Estimation and Testing Results by Row

Table 5. Confusion Matrix

Fitted Model (_INTO_)	Observed (_FROM_)	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0(Didn't)	0(Didn't)	115	3.54	115	3.54
0(Didn't)	1(Graduated)	56	1.72	171	5.26
1(Graduated)	0(Didn't)	537	16.52	708	21.78
1(Graduated)	1(Graduated)	2543	78.22	3251	100.00
Frequency Missing = 1327					

Discussion

The Organization for Economic Co-operation and Development (OECD) released the results of its 2015 global rankings on student performance in mathematics, reading, and science, on the Program for International Student Assessment (PISA). The PISA is a triennial examination given to 15-year old students and administered in 72 countries, with about 540,000 students taking the assessment in 2015. Based on the average scores of the three subjects, the ranking of the United States was 40th in mathematics, 24th in reading, and 25th in sciences ("PISA", 2016).

Mathematics. The ranking mentioned above is a mirror of the capacities of the students studied. English level of high school graduates in this country is strong enough to handle all basic reading and writing at the university. Regarding math, explanation may be that both SAT and ACT only test students' math capacity and proficiency in middle school, or even primary school level. This is the reason why the College Board has SAT subject tests Math I and Math II. However, a few universities, such as MIT, CIT, and Wharton Business School of the University of Pennsylvania, have required their applicants to submit SAT subject test math scores. In other words, even students have limited knowledge about algebra II and pre-calculus, they still get very high scores in SAT math, usually above 700 or above. After the students begin their college study, the minimum requirement of math courses, including students in the majors of social sciences and humanity, is algebra II which is called college algebra at the university. Therefore, proficiency of math has become very important. Because of lacking math proficiency, some students in the cohort had to take Math-141 Calculus I multiple times. An extreme case was that four students took the course for nine times.

Sciences. In order to fulfill the requirement of seven credits of scientific literacy at this university, students have to take some sciences courses. Because of relatively weak preparation for any science subjects in high school level, many students in the cohort needed to take the same entry level science courses repeatedly. Physics was not in the list because physics needs more proficiency in both physics and math. Some students skipped physics during their high school and skipped physics in the university



again. Students' academic performance at high school has been found to influence their study at the university.

As what Table 1 showed, 2,202 students (representing 48% of the cohort) repeated at least one of the six identified math and sciences courses. Since the students were not well prepared in math and science subjects, the subjects might be the major obstacles for them to complete their degree.

Conclusions

Comparing Factors Affecting Graduation

The study by Millea, Wills, Elder, and Molina (2018) indicated that students' academic preparation was highly correlated to their graduation or persistence. Academic preparation in their study was based on students standardized test scores and high school GPA. Although the fitted model of this study did not use SAT scores, the number of times the six STEM courses were repeated was selected. This variable fully reflected the students' college preparation in STEM fields since the six STEM courses were introduction level courses of each field. This is consistent with the findings by Millea, Wills, Elder, and Molina (2018) though the means of the academic preparation might be different. With respect to demographic information, the model generated during the present study did not identify either gender or status as underrepresented minority to be factors that affect graduation rate. This echoes with the conclusion drawn by Millea, Wills, Elder, and Molina (2018). Although course credit earned from first-year seminar (UNIV-101) was not selected by the model used in the present study as a factor affecting graduation rate, it was selected in the model of predicting the students' retention in the fall of junior year, which was not presented here. Therefore, first-year seminar (UNIV-101) was found to have indirect influence on the student graduation.

Pell Grant Recipients and Their Graduation Rate

Logistic regression. As discussed above, this model selected six explainer variables in the fitted model, including the indicator Pell Grant recipient. In addition to the other five explainer variables which affected all students, the indicator Pell Grant recipient had a negative effect for Pell Grant recipients' graduation. Based on the odds ratio mentioned above, the graduation rate of Pell Grant recipients was 24% lower than the rate of non-Pell Grant recipients.

ANOVA. The 3,251 students in the fitted model had been categorized into four groups, Pell Grant and first-generation college students, Pell Grant and non-first-generation college students, non-Pell Grant and first-generation students, and non-Pell Grant and non-first-generation students. Based on the ANOVA analysis results, the graduation rates of the students in the four groups were significantly different (F = 78.69, α = <.0001).

The ANOVA analysis double checked the logistic regression results presented earlier. There were significantly different between all groups with exception of the Pell and Non-first-generation to Non-Pell and first-generation students. Pell Grant recipients, especially first-generation college students, were less likely to complete their degree study. The two statistics methods did emphasize that Pell Grant recipients need more support from student service and academic departments, as they were at a greater disadvantage compared to other students in the cohort.

Recommendations

Given the magnitude of funding provided to Pell recipients annually, it behooves all higher education institutions to conduct ongoing and systematic evaluations based on the factors described in this study.



Researchers may want to also look at factors collected at the beginning of the third year of a student's enrollment, which were shown to differ only slightly when compared to actual education outcome for the students involved in this study. In a similar application of the aforementioned factors, a confusion matrix created by the model generated during the present study predicted with high accuracy the students who might not graduate within six years. This can be used as evidence to support additional services to help student succeed academically.

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3_Paper8

Data Analytics: Planning and Quality Management Dimensional alignment in HEI

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ABSTRACT

Data analytics is a business world application to the HEIs in the form of institutional research. The practice of this data analytics is more focused on the student effectiveness management of the cause-effect of diversity management in relation to student performance and inclusivity, teaching and learning efficiencies and effectiveness. While this core focus is still very relevant, its operational aspect can be enhanced and capitalized through the planning and quality management tactical and strategic alignment. This paper attempts to showcase the interlinkages of the planning and quality management dimensions by mapping out the use of the student effectiveness metric of SCI (Student Competency Index) which is a composite measure of the learning outcomes. This is to demonstrate the definition, development of quality assessment measurement metrics can be linked through a set of aligned planning and quality management domains based on the mission, goals and objectives from the course level to the institution level. This performance metric is seamlessly applied across board and across different levels of operational, tactical and strategic performance measurement. These can be aggregated and de-aggregated to drill down to each of the individual students' performance and as linked to the faculty performance that is another key performance indicator of the teaching and learning management domain. Inherently, this case example would mean that the planning performance metrics and the quality management performance metrics and their data analytics are intertwined. This would substantiate the integrated planning and quality management approach as a key means to an end of managing the "management of the whole" as opposed to the piecemeal "management of the pieces" that undermines the strategic "sum of the whole is greater than the sum of the parts" performance. This could effectively mean that the development of performance metrics and analytics at all levels by all units should be guided by the mission, goals and objectives whereby the planning and quality are inseparable and twinned strategically, tactically and operationally within a singular holistic set of metrics and analytics.

Keywords: Data Analytics, Performance Metrics, Planning and Quality Management





Introduction

Globally, HEIs (Higher Education Institutions) are being called upon to navigate increasingly complex and uncertain terrains because of phenomena such as globalization, international ranking, shrinking government funding, rising cost of attending HEIs, calls for better accountability and demands to widen access to marginalized groups. Under such continuous flux of change, key studies (Abu Mezied, 2016; Charlesworth, 2017; Jörg, Davis & Nickmans, 2007 and Lee and Tsai, 2011) show that there is uncertainty, confusion, resistance, and a certain passivism on the part of both students and teachers to embrace educational and technological changes that impacts on course delivery affecting student learning. Some of the key findings (Charlesworth, 2018) indicated that: (1) both students and educators are novices in the use of technology for learning with innovation-related projects calling for more than lip service (2) there is a need to close the gap between institutional vision and what is happening on the ground, and (3) there is a real need for scaffolding through a centralized resource center and institutional support (De Corte, 2012), with sufficient time for change in the overall planning and management of program and course delivery and learning.

It is in this context that the role of IR practitioners in supporting emergent and creative modes of planning and quality becomes important. HEIs tried to inclusively manage these changes through its Strategic, Tactical and Operational Planning (STOP) Processes that are business management tools, mechanisms and processes, though having been part and parcel of HEIs' management over the past decades. While inherently important through its purported alignment from the institutional to collegial to programmatic levels to ensure that all academic units move in the same strategic direction in its aim towards "academic excellence" under the performance excellence framework (NIST, 2019), its success in implementation and performance measurement has been lack luster. In the studies of Kruger and Dunning (1999) and Ehrlinger and Dunning, (2003), both studies noted that people's perceptions of their performance, and potential errors in those perceptions, are chronic views people hold regarding their abilities or incompetence. This potentially includes the ability to assess the quality of their performance as well as the performances of others (Fagot & O'Brien, 1994; Maki, Jonas, & Kallod, 1994; Moreland, Miller, & Laucka, 1981; Shaughnessy, 1979; Sinkavich, 1995). These paucities potentially hold true even in the academic environment when academics shy away from performance analytics or measures as assessments of ability has the tendency to be self-serving (Dunning, 1993; Kunda, 1990) or egocentric of "know all and already good" mindsets.

The QA (quality assurance) culture issue in the HEIs is compounded by the lack of clarity and vagueness about the concept of quality in higher education (Kahsay, 2012) while others claim QA in HEIs to be "elusive" and "relative" (Harvey and Green, 1993; Vroeijenstijn, 1992; Westerheijden, 2007); not a static but a "dynamic" evolving concern nor it being a one dimensional but has "multidimensional" aspects and perspectives of interpretations, definitions, constructs and variables or just a philosophical concept that lacks a general theory in the literature" (Green, 1994; Westerheijden, 2007). Kottman et al., (2016) also noted that "organizational culture that intends to enhance quality permanently is characterized by two distinct elements of: (1) a cultural/psychological element of shared values, beliefs, expectations and commitment towards quality and (2) a structural/managerial element with defined processes that enhance quality and aim at coordinating individual efforts" (EUA, 2006).

How well the HEIs are meeting the needs of students is reflected in <u>The Second Gallup-Purdue Index</u> (<u>GPI</u>) polls (Henry, 2015) that shows:

- 80 percent of Americans agree or strongly agree that HEIs need to change to better meet the needs of today's students.
- Only 50 percent of university graduates believe that higher education is worth the cost.

The GPI does reflect an inherent issue that over the past decades the HEIs quality focus of academic quality is still largely evaluated by the most well-known rating agencies and among most higher education stakeholders using only institutional inputs. This includes factors such as percentage of tenured faculty, research outputs, internationalization, and scores from peer evaluations as their



predominant measurements. It does not reflect the true value of education, whereby more importance should be placed on clarity and transparency on student outcomes.

To improve on these performance issues arriving at informed decision, data analytics objectivity can improve on informed decision making as to performance barring the QA and organizational cultural issue and the personification and perception issues noted above. As noted by Prof. London, in the April 2019 McKinsey podcast, "bringing computing power and analytics capabilities together is critical to driving lasting and effective change" (Hancock, Schaninger, London, 2019). A study by Kleijnen, et al, (2011) showed that the management of quality cultures is critical to the efficacy of quality assurance and its potential for the performance management in that "academic programs are more efficient when systematic quality assurance procedures were embedded in clear communication structures and open value systems allowing for quality learning rather than for quality control".

Bringing together the planning and the QA (Quality Assurance) dimensions in the HEIs is a herculean effort as these two management aspects are emanated from the business management and production disciplines. As applied to HEIs, QA and planning are elusive organizational issues that needs to be managed well to ensure that the HEIs' performance are well planned and assured of its educational quality based on its planning at the strategic, tactical and operational academic areas. The key linkage of the of the planning-quality twins is through its metrics. The planning side defines the performance metrics through its KPIs (Key Performance Indicators) or the statistical data that are also used as the based for determining and measuring of the quality aspects of the education value. As such, the aim of this paper is to use one of the key student effectiveness indicators, the Student Competency Index (SCI) to demonstrate the linkage of this index as the indicator linkage between the planning and quality dimensions. This SCI is used to further illustrate the efficacy of its use to support informed decision based on its data analytics.

Institutional Research and Data Analytics

Klemenčič *et al.* (2015) noted that strategic and performance-oriented management practices and requirements in HEIs have raised the prominence and significance of IR. Terenzini (1993) asserted that advances in computing, shifting budgetary climate, increasing complexity and sophistication of decision making underpins the calls for increased institutional effectiveness through IR. There is a stronger emphasis on institutional effectiveness and the HEIs are facing ever-increasing scrutiny to be accountable for results in achieving its purposes for its educational product and services as public good (Santiago, Tremblay, Basri & Arnal 2008). In most HEIs' severely resource-constrained environment, the involvement of planners and institutional researchers in supporting the identification of new directions to respond to and shape transformative change has become crucial. This is accompanied by widespread recognition of the importance of user-friendly data analytics for accountability, performance monitoring, assessment and management through data-informed strategic planning (Norris & Poulton 2010).

This calls for a holistic approach to planning of the qualitative and quantitative improvements of the student experience focus on using inputs as well as outputs to build quality programs that are both academically rigorous and career-relevant (Takeda-Tinker, 2017). Inputs include curriculum that imparts both academic theories and workplace application of such theories; faculty with industry work experience in their areas of expertise; acquisition of skills and abilities leading to industry certifications; and 24/7 free access to live tutoring, technical support, career services, library databases and career and writing coaches. These highlights the critical importance of data analytics in tracking of student engagement and learning from initial enrollment through graduation, and its ongoing monitoring of alumni workplace success illustrating the education and value proposition that are shared to prospective, current and graduating students, as well as to key stakeholders. Keeping the institutional focus on these outputs can also drive strategic direction and individualized student support. These can include regular assessment of academic programs and student learning outcome achievement, which become actionable curricular improvements through a bi-annual program review cycle. Faculty and students are monitored for course interactions to proactively intervene when potential at-risk situations arise, and students are provided with opportunities to evaluate faculty after each term to ensure their expectations are being



met. The bottom line is the use of data-based practices to ensure scalability of staff, faculty and budgeted resources to optimize performance based on forecasted student growth, persistence and retention.

Institutional research is research conducted within an institution of higher education to provide information which supports institutional planning, policy formation and decision making that serve the governance responsibilities which is the basis of performance management in a HEI. Calderon and Webber (2015) summed up the role of IR as "...not only to collaboratively assist decision makers in navigating through these complexities but also for IR practitioners to be agents of change..." for the purposes of fostering institutional innovation and advancement. In Swing and Ross (2016)'s, "A New Vision for Institutional Research" of the "change agency" vision of IR, it acknowledges that (1) students, faculty, and staff are decision makers who affect achievement of planning and quality of the whole learning experience (2) the new role is in coaching a wide array of data consumers, managing institution-wide data and analytical requirements, and orchestrating "the economics of institutional research" in balancing information supply and demand centered on the student-focused perspective with the oversight of data and analytical tools as valuable resources that empower decision making at the tactical and operational levels and not just support for top-level strategy. This new IR vision is based on the fact that informed decisions routinely occur across the HEI with the speed and flexibility required for real world management of the modern HEI (Gagliardi and Wellman, 2014).

In 2016, Jason R. Lewis and Leah Ewing Ross of AIR (Association for Institutional Research) proposed "A Holistic Approach to IR" that explores a variety of key concepts in a series of core lessons of: (1) Transforming Data into Information for Decision Support; (2) Data Management and Governance, and (3) Data-Informed Decision Cultures. The latest AIR's research identified 5 main areas of duties and responsibilities (Figure 1) of: (1) identify information needs; (2) collect, analyze, interpreted and report data and information; (3) plan and evaluate; (4) serve as stewards of data and information and (5) educate information producers, users and consumers.

	Figure 1: K	SU-IR (Institutional Research) Framework
	Duties	Responsibilities
Q	1. Identify information needs	 the iterative process of identifying relevant stakeholders and their decision support needs assisting stakeholders in developing and refining research questions
0	2. Collect, analyze, interpret,and report data and information	 provide data, information, and analysis for decision support process of collecting and reporting required and requested data incorporates applied research methods to analyse data to provide information for decision making, including appropriate interpretation of analysis results
	3. Plan and evaluate	 planning may include operational, budgetary, and strategic planning include program review, particularly for accreditation purposes formative and summative evaluation processes conducted at an institution use IR data and analysis for planning and decision making purposes
	4. Serve as stewards of data and information	 institutional research's role in ensuring an institution-wide data strategy (privacy and security and ethical issues) data quality assurance activities ensuring data are appropriately accessible and usable to those who need them to make decisions
n ft	5. Educate information producers, users, and consumers	 training and coaching related to the use of data, analysis, and information to inform decision making ensuring the ability to collect, access, analyze, and interpret information independently and in collaboration with other stakeholders scholarship to inform and improve data, information, and analysis for decision support

Source: Adapted from AIR (Association for Institutional Research) 2017, *Development of Duties and Duties & Functions of Institutional Research*, FL, U.S.A., <u>https://airweb.org./</u>



Linking Planning-Quality (PG) Dimensions to Data Analytics

Haskell, (2017) highlighted the imperatives of linking of internal information needs with those of external actors as a key to effective operations. This means that IR should seek to be a bridge between their institution and its environment so that effective information can be provided to all who needs it. Haskell raised the core questions of "IR for whom? Real purpose of IR capacity? Proper IR roles and function both internally and externally? Principal purpose of IR to serve the needs of the institutional decision makers? How are those decision makers defined? How do the internal and external functions align? Are there other considerations?" These questions mean that IR is multifaceted and serves many stakeholders, of the students for student effectiveness, the program of program achievements, faculty effectiveness of their teaching and assessment practices and institutional efficiencies and effectiveness.

Based on these evolving changes in the educational arena, and the changing stakeholders terrains Nel, (2016) developed a Monitoring & Evaluation framework for IR underpinned by four key indicators that assess institutional effectiveness in terms of, (a) strategic positioning and identity as a HEI; (b) teaching and learning excellence; (c) the productivity and impact of research and engagement; and (d) organizational capability and sustainability. The real challenge is how the plans are developed and implemented; how to gather and organize data so information can be made accessible and useful to support the full range of an institution's and stakeholders' functions and mission. In other words, how can data be organized to best meet the complete scope of internal information required for actions and decision making? And, at the same time, how can the same data be organized to provide the information required by accreditors and other external stakeholders?



Figure 2: Overall Planning & Quality (PQ) Linkages

This paper proposes that the linkages of the planning-information-quality dimensions (Teay, 2017) must be well established to ensure the alignment of the planning and quality dimensions though the informatics of the performance metrics. While these performance metrics are multi-faceted to determine the performance of all administrative and academic aspects of the HEIs, this paper will illustrate this key linkage through the use of a student effectiveness indicator of the "Student Competency Index" (SCI) that highlights the strong linkage as shown in the Planning-Quality (PQ) Cycles 1 to 6 (Figure 2). The overall PQ dimensional linkages shows the 6 main PQ Cycles of:

PQ Cycle 1 whereby the alignment of the institution, collegial and programmatic VMGO (Vision, Mission, Goals and Objectives) are aligned with the main aim of student effectiveness;



PQ Cycle 2, based on the program VMGO, the program objectives are defined as measurable learning outcomes, of which a key indicator for student effectiveness is the Student Competency Index (SCI);

PQ Cycle 3 of defining and linking program and course learning outcomes (PLOs & CLOs) as part of the SCI;

PQ Cycle 4 of determining and measuring the SCI for each of the CLO/PLO linked outcomes of its assessment methods;

PQ Cycle 5 of determining and aggregating each of the specific learning outcomes or a totality SCI of each student/course/program; and

PQ Cycle 6 with the use of BI (Business Intelligence) tools to conduct data analytics that are used for the developmental of future planning or informed decisions.



Figure 3: PQ Cycle 1 - Aligning Institution, College, Program VMGO & Student Effectiveness

Planning is nothing new, as all fully functioning HEIs resort to a 5- or 10-years strategic plans that map out the key strategic direction of "where to go and what and how to accomplish" their mission and how their performance are determined and measured through the Key Performance Indicators (KPIs). This is also inherently true of all academic and administrative units that will then map out their alignment of the mission, goals and measurable objectives. In all accreditation systems, there is a basic requirement of a planning system and a quality mechanism that calls for the alignments of the strategic institutional plans, tactical collegial plans and operational programmatic plans, whereby their Vision, Mission, Goals and Objectives (VMGO) are aligned from institutional to collegial to programmatic levels (Figure 3). The assessor mind of frame is always to ask of the VMGO as the key frame of audit and assessment to determine the audit as compliance to the standards and assessment as the assessment of the performance of its processes and results. The PDCA (Plan, Do, Check & Act) and performance excellence assessment framework of ADLI (Approach, Deployment, Learning. Integration) evaluation of the process is the normal assessment frame of mind of any assessor (Teay, 2019). These PDCA or ADLI


process are mapped through the Program objectives, the PLOs/CLOs learning outcomes measures, the assessment methods, all of which culminate in the SCI learning outcome measures of student effectiveness (Figure 3).



Figure 4: PQ Cycle 2 – Linking HEI & Program Objectives to Learning Outcomes SCI Metric

Another key aspect of the audit and assessment is the development and design of the measurable objectives. The institution needs to define the institution strategic objectives (SOs) its HEI SO 2 as "XXX University graduates are globally competent and informed citizens of the world". This is then cascaded to the colleges and programs that define objectives that are aligned with the institutional HEI SO 2 as "*College SO 2.1*: AAA graduates are knowledgeable and demonstrate critical, analytical competency in its main field of expertise" and "*Program SO 2.1*: ABC graduates demonstrate highly sought knowledgeable critical & analytical competency in the ABC specialization" (Figure 4). This is a key point that assessors will look for to ensure that the institution, collegial and programmatic strategic objectives of the student are defined and aligned accordingly. These translates into the alignment of the strategic, tactical and operational objectives at the different levels of operations and assessment.

Once defined, the program will find it mandatory to design the PLOs/CLOs to meet the program objectives. In this case, the various types of learning outcomes could be deigned as Knowledge Index (KI), Critical Thinking Index (CTI) and Analytical Index (AI), all of which are key components of the SCI. These learning outcomes will be used to define the assessments methodologies used for the assessed work to determine the KI, CTI or AI separately but inclusively as part of the assessed works leading to the composite SCI.





Figure 5: PQ Cycle 3 – Linking PLO/CLO and Assessment Metrics of SCI

Another key question that assessor normally frame is the "graduate attribute" which is guided by the mission of the institution (Figure 5). This is the key differentiator of the differing HEIs and what they ultimately expect as the institutional identity of its graduate. This is also enshrined in the accreditation standards. The graduate attribute is in fact a key representative outcome attribute and measure of what the HEI intends to do and accomplish. This key graduate attribute is the more definitive outcome expected of the institution graduate regardless of program, all of which should be defined and aligned with the similar unique identity of the institution graduate, that later will be used to define the learning outcomes and their measures. An illustration of the institution graduate profile is University Graduate Attribute - "XXX graduate is an investigative critical thinking knowledge informed citizen" that are translated into the collegial and programmatic graduate profile of: College / Programmatic graduate attribute "intellectually curious in pursuit of new knowledge with understanding to identify, define and assess complex issues and ideas in a researchable form". Based on this overarching graduate profile, the key attributes define the key competency of the KI, CTI, AI and etc., of the college and program thus guiding the alignment of the graduates' attributes into a unique identity.





Figure 6: PQ Cycle 4 – Linking PLO/CLO, Assessment Methods to KI of SCI

In PQ Cycle 4 (Figure 6), the details of the the alignement of the program obejctive, the PLOs/CLOs are now better guided. Based on the KI, CTI or AI requirements, the different assessment methods are determined and applied as key assessment methods of a specific set of learning outcomes. These assessment methods can vary from simple KI assessment intruments of quizzes and exams using multiple choices, true/false statements or fill in the blanks. These are then mapped to each of the CLOs KI, CTI or AI components. The score of each of these are prorated accordingly of: (1) how much is the core for each component, and (2) its prorated contribution to the assessment method.



Figure 7: PQ Cycle 5 – Determining & Aggregating all Components of SCI



In PQ Cycle 5, all the different assessment methods used for a course are used as the composite measurement score for each learning outcome component of the KI and CTI as an aggregated score for that course, which is the SCI for that specific course (Figure 7). If a student takes 6 courses per semester, there can be different ways to look at the learning outcomes measure CLO 1.2 of the SCI:

as each of the KI, CTI component seperately which in this case, the actual KI of all the 6 courses are 0.37 out of 0.49 which is the averaged KI, and

as a totality of only the KI independent of the the other imdices which is 0.76/1.00, and

the overall composite SCI of all the different indices of the SCI for all the 6 cousres for a specific semester as 0.68/1.00.

Note: The assignment of the % is dependent on each of the instructor's assignment of the overall course 100% across the different assessment methodologies used for the whole course, e.g. 34% for Mid-term and 60% for Final; then for the mid-term examination, the composition could be 30% MC (multiple choice), 30% T/F (True/False) for KI and 40% Essay for CTI which means that the total contribution to the CTI or KI is dependent on the acheiveemnt of maybe 40% for CTI and 60% for KI, thereby arriving at the computation of the KI accomplishment as 0.6{(Actual % of MC + Actual % of T/F)/60%}. As such, the % and weighting will be based on two things: (1) choice of assessment menthodlogy used; and (2) assigned weight or % contribution of the competency learning outcomes of CTI, KI and others to add up to an over 100% for the whole course or as an aggregated 1.

In terms of data analytics (DA) (Figure 8), there is no limits to the different types of data analytics that can be performed using BI tools. The types of data analytics done is dependent of the creativity of the institution, college or program in monitoring the performance of the individual student, course or program performance based on its student effectiveness indicators of the SCI based on its PQ metrics. Data analytics Type DA 1 and DA2 illustrates the different types of analytics for each course, each component for all components depending on what and how we wish to analyze the performance and to discover the opportunities for improvements based on the aggregated or disaggregated components indices measures.

DA 1: Course 1 SCI (0.69/1) = KI (0.44) + CTI (0.25)

DA 2: Averaged KI of 6 courses (0.37) = [KI C1 (0.44) + KI C2 (0.3) + KI C3...... KI C6 (0.35)]/6

DA 3: Drill down/UP of Aggregated KI, CTI, AI for each student/course/all courses.... OR Overall SCI of a/all student(s) in a/all course(s), a/all program(s), a/all college(s)

DA 4: Determining and Benchmarking SCI as a KPI of planning/quality linkage

Figure 8: PQ Cycle 6 – Multifaceted Data Analytics of Planning/Quality linkage



Data analytics Type DA 3 shows the power of drill up-drill down of the aggregated or disaggregated components at the student, course, and all courses of a student in a semester, all courses, in the program, all programs within the colleges, and all colleges within the institution. These can be based on only one component, e.g. KI or CTI, or whatever, or all components with the SCI. For data analytics DA 4, due to the power of the BI analytics, benchmarking across the different indices components separately or the whole SCI, each component, course, student or program indices can be used for benchmarking purpose. What and how these benchmarks are developed and used is dependent on the types of comparative that the institution, college or program has planned for and intend to measure.

Implications and discussions

Implications of the research

It is important to note that the above data analytics illustrated above of the SCI measures of the learning outcome CLO 1.2 and PLO 1 of the Knowledge component the KI demonstrate the linkage of the planning and quality dimensions. This planning-quality linkage is based on the quality-information-planning trio as proposed by Teay, (2017). This inherently is the basis of operational aspects of the IR framework that links quality management, accreditation management and planning management via the information management of the data analytics.

This is the norm by which the assessors will use to assess the achievements of the course/program outcomes of student effectiveness as linked to the course/program objectives which are guided by the goals/objectives and the key mission of the program and college to the institution. This planning-quality linkage final measured outcomes as indicated by the SCI can be used as:

Individual SCI Student Effectiveness measure – From the quality assurance perspective, this ultimate SCI can be used as an indication of students effectiveness as a composite SCI or as its components like the KI or CTI to determine which of the learning outcomes are accomplished and which needs to be improved on for the period of development over the course of the study. It can also be used to identify the strength and weakness of the different assessment methodologies used for each course to measure the learning outcomes of the student performance. This inherently can be used as developmental tools for course/program and faculty/student, teaching & learning or curriculum improvements.

SCI as a planning performance indicator – From the planning perspective, the SCI can be used as an indicator of planning effectiveness as the learning outcomes measure provide an in-depth insight into the planning effectiveness leading to the operational teaching & learning process quality efficiencies and the student's effectiveness indicator as shown in the SCI or its components breakdown aggregation and de-aggregation.

This ultimately show that the SCI is a very powerful set of performance measures from the qualityplanning perspectives interlinked to achieve the same aligned mission, goals and objectives of the program/course, student/faculty and teaching & learning achievement.

Implications for Future Institutional Research Directions

Institutional Research can involve data and analyses which contribute to wider knowledge about how colleges and individuals function, that are frequently undertaken in association with specific planning, policy, or decision situations. Institutional Research designed to answer such questions is a form of applied research to answer questions or provide data analytics as excerpted from Saupe, (2009) "*The Functions of Institutional Research*". This means that the IR in the coming era coupled with changes in technologies, new data analytics paradigms, the informed decision making focus that are based on plans and its inherent performance assessment through its metrics (Swing and Ross, 2016; Gagliardi and Wellman, 2014) should be the norm. The new era IR should change by:

Focusing on Data-Informed Student Decision Making – This will inform decisions students make (e.g., how to best use time, academic and extracurricular choices, and life decisions that impact collegiate success), produced and disseminated with students as the target audience and/or unit of analysis that are aligned with the cycles of student decisions, which often differ from fiscal, multi-year strategic planning, and academic term calendars by:



Supporting the students' efforts to get the education to meet the students' needs and expectations based on their preferences, predispositions and academic behavior with:

Regards to the diverse needs and expectations of part-time students, minority-group students, women students, highly talented students, handicapped students, older students and others differ from the traditional student in ways which have implications for the achievement of the educational goals of such students and of the college or university,

Students' program, course and scheduling behavior needs and expectations that can be summarized whereby student own efficacy and effectiveness and institutional goals can be evaluated and understood by the students, programs and institutional to take developmental actions.

Supporting the students' initiatives intended to foster access to the educational opportunities offered by the college or university by:

Contributing to attempts to ensure that the applicant's choice of the institution is an informed one through getting the consumer information to be available to prospective students,

Allowing for better financial affairs management by the students that can be used as consumer information as well as referents for the determination of financial aid programs and policies through the students' perceptions of the effectiveness of the program of financial aid in achieving the students' goals set for its selected program that can be evaluated with the evaluation leading to improved use of financial aid or personal resources management.

Focusing on Data-Informed Faculty or Program committees Decision Making – This will focus on access to data and information to support decisions about policies and structures for which they have oversight and support them in designing their work, with special emphasis on student learning outcomes through:

Program planning and development by means of market research and needs assessment that are planned, managed and measured for performance by:

Supporting intensive reviews of programs or departments by providing relevant factual evidence and by summarizing qualitative information.

Illuminating reviews and revisions of curricula by producing information on students' course-selection behavior.

Providing information relevant to questions about the grade-giving behavior of faculty and the gradeearning behavior of students; such questions may arise from concerns about standards or about equity with students.

Improvement of instruction through:

Procedures and specific instruments used in the evaluation of instruction, such as student rating-ofinstruction forms, are selected or developed by means of research.

Evaluation of instructional methods and media that is a process designed to lead to improvement and is guided by evidence from research.

Identification of inefficiencies in instructional activities and in the allocation of resources with:

Data on class sizes, teaching loads and student-credit-hour productivity

Data on the incidence of small classes and on the frequency of offering of individual courses are made available to academic administrators.

Focusing on Data-Informed Administrators and Administrative Committees Decision Making – This will focus access to data and information to support decisions about policies and structures for which they have management oversight and support them in designing their work, with special emphasis on disaggregation of data to address the unique needs of specific students. Some of these key areas are:

The institution's several publics perceptions of its missions and goals and in specifying new or altered missions, goals and objectives and performance metrics and outcomes achievements by:



Assisting in relating performance to goals by assessing institutional outcomes and accomplishments that can point to areas in which performance does not appear to meet expectations and can suggest strategies for improvement.

Facilitating institutional self-study and accreditation processes and can contribute evidence that the college or university is accountable for its use of resources and performance.

Organizational culture of the college or university, investigating the extent to which various values and norms are present among the faculty, students and administrators and the extent to which the culture is shared or in conflict. Information from such investigations can inform the direction of planning or policy and can provide an understanding of potential obstacles to moving in new directions.

Enrolment projections and providing analyses of enrolment trends and relationships which guide enrolment policy and suggest assumptions and strategies for enrolment planning through:

Data describing the student body can be related to enrolment goals.

Data on retention and attrition can reveal problems.

Institutional research on causes of attrition and on strategies for increasing retention can contribute to maximizing society's investment in education.

Evaluation and improvement of such programs as academic advising, counselling, career planning, placement, intercollegiate athletics, health services and housing.

Institution's development program through:

Assisting in organizing information about the institution used in proposals for external funding of specific projects;

Assisting in building case statements for fund-raising campaigns; and

Contributing to designing information-based strategies for seeking donations from foundations, corporations, and individuals

Conclusion

The bottom line is that institutional research alone cannot lead to sound plans, appropriate policies, or correct decisions for the college or university. The organizational culture, wisdom, integrity, and courage possessed by those who share the responsibilities of governance are the principal determinants of the soundness of plans and its performance metrics implementation and measurement, the appropriateness of policies, and the correctness of decisions. Institutional Research can, however, provide data and information which contribute to and, in some instances, are essential for maintaining the quality of governance expected of an institution whose existence is based upon principles of rationality, wisdom and truth, as illustrated by this simple and innocent SCI that links planning to quality achievements.

While seemingly important in linking planning to quality dimensions via the performance metrics and data analytics, Childers (2017) noted some of the key obstacles to actionable data analytics and business intelligence as: (1) Defining "the most important data" is difficult, because there are multiple constituencies as business intelligence (or decision support) decision-making spreads out both across and up and down the organization, (2) cleaning and preparing data can be daunting and seemingly never-ending, (3) managing the reality of data quality and its fitness for its intended use, but also the impression that people have of the quality of the data (4) maintaining data consistency, data currency across different source systems, data elements that cut across organizational lines, and need to be viewed as an institutional asset, (5) specialized skills needed like dimensional modeling, ETL, and data science or the creation and maintenance of the central data warehouse and the application of data science techniques, and (6) information not being a free good as thought as it requires significant and sustaining allocation of funds. It is important that the HEIs recognize these issues and capitalize on the imperatives and importance of the PQ linkages.



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3_Paper9

Exploring Domains and Determinants of Early Retirement among School Teachers

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ABSTRACT

The retirement age of civil servants in Malaysia was extended to 60 according to Public Service Department Malaysia in 2013. However, lately, early-optional retirement among school teachers has become an issue in which the number of teachers opted for early optional retirement is increasing each year in Malaysia. Employee's intention for early retirement is influenced by many factors, such as job and organizational, socioeconomic, individual and family situation. Studies show that motivation to leave the teaching profession is related to job satisfaction. However, there is scarce empirical evidence that academicians evaluate the factors causing early retirement among school teachers. This research is set out to explore this issue by identifying factors leading to early retirement among school teachers. Therefore, factors lead to early retirement among school teachers will be identified. The findings come up with a technique for identifying factors of early retirement among school teachers, thereby enable scholars to conduct a more effective and efficient literature review henceforth.

Keywords: Early Retirement, Literature Review, Teachers, Retirement Age Intention, Domains and Determinants





Introduction

It has been acknowledged that population ageing is a worldwide phenomenon (Wheaton & Crimmins, 2012). Recent studies have further claimed that "Silver Tsunami" is one of the most prominent trends all over the world (Gill, 2015; Templin et. al., 2017). Many countries are currently experiencing the growth of the older population where the population age is increasing over 65 years old (Hart & Bigler, 2017). A country is considered as an ageing nation when 7 per cent of its population is comprised of people of 65 years old and above. Malaysia is one of the developing countries marching towards becoming an ageing nation (The Straits Times, 2017). Based on the data and statistics published by the Social Wellbeing Research Centre of the University of Malaya there will be 3.5 million of 60-year-olds and above in 2020 and the number will escalate to 6.2 million in 2040, representing approximately 20 per cent of the country's population (New Straits Times, 2018).

It has been reported that the public sector has the biggest pool of employees in Malaysia (Haris, A. & Said, R., 2012), where there is a ratio of one civil servant to 20 people. In 2017, Malaysia's government has allocated RM77.4 billion for civil service pay, which amounted to 36per cent of the budgeted operating expenditure. There were 739,000 public service pensioners in 2015 alone, and this group is joined by 23,000 people each year. Furthermore, RM11.5 billion has also been spent by the government on pensions which represented 7.6 per cent of the operating expenditure. Thornton and Fleming (2011) explained that critical financial situations caused budget deficits and imposed more pressure on the existing overburdened social security and pension systems. This statement was further supported by Gannon and Roberts (2011) who claimed that the ageing population has an impact on the economic growth potential and the labour market. Consequently, civil servants in Malaysia are highly encouraged by the government to postpone their retirement through the amendment of Malaysia Pension Scheme.

Back in 2001, the retirement age of civil servants in Malaysia, including school teachers, was extended from 55 to 56, followed by another increment from 56 to 58 in 2008. A more recent move was made official in 2012 from 58 to 60 (JPA, 2013). Nonetheless, early optional retirement among school teachers has become a central issue in Malaysia (Bernama, 2016) such that a substantial number of teachers exited the education field before they even reached the permitted retirement age. According to former Deputy Minister of Education, Datuk P. Kamalanathan, a total of 3591 teachers have opted for early retirement in 2016 in comparison to 2,777 in 2015 (Malay Mail, 2017).

International researchers have also divulged that teacher turnover has become a critical issue across the globe (Chang, 2009; Hong, 2012). According to the Human Resource Department of Ministry of Education, out of 2,777 teachers who opted for early retirement in 2015, 1,972 were female teachers and 805 were males. The percentage of early optional retirement among school teachers increased by 22.4 per cent in the following year and the number of female and male early-retired teachers were 2413 and 986 respectively. This situation has become more alarming when there were 3591 teachers who opted for the early optional retirement in 2017 with 2550 female teachers and 1041 males.





Figure 1: Number of teachers opt for early retirement from 2015-2017 Source: Human Resource Department, Minister of Education, Malaysia. (2018)

This dire condition is worsened with the fact that nine out of 27 teacher training colleges (IPG) in Malaysia will be converted into a vocational and polytechnic college in accordance with the technical and vocational education and training (TVET) (Sarawak Voice, 2016). Moreover, two teacher training colleges, i.e. IPG Kampus Raja Melewar and IPG Kampus Tuanku Bainun will be transformed into PERMATApintar National Gifted Centre. It has also been reported that the number of teacher trainees recruited by the Ministry of Education was decreasing each year (Harian Metro, 2016). The Teacher Trainee Recruitment Department has captured a dwindling trend where 5,082 students were recruited in 2010, followed by 4,001, 2,316, and 1,190 in the subsequent years. Meanwhile, in 2014 and 2015, the total numbers of teacher trainees who were enrolled in IPG were 2,267 and 2,092 respectively. It was further recorded that there were only 1,576 students enrolling in the Bachelor Degree Programme in Education (with Honours) (Program Ijazah Sarjana Muda Perguruan, (PISMP)) in 2016. According to Datuk Seri Dr Ahmad Zahid Hamidi, Ministry of Education has limited the annual recruitment of teacher trainees to 1,600 students each year starting 2017. This standardisation has created a big gap between the number of retired teachers and teacher trainees. Hence, the overall quality of the workforce will be impaired by the shortage of employable teachers (Highfield, 2018).

Meta-analytic techniques were employed in this study to review the existing empirical studies. The current paper aims to deliver a comprehensive understanding of the domains and determinants of early-retirement among school teachers as well as to propose the potential avenues for forthcoming research. It should be emphasised that this meta-analysis was driven by a fundamental research question of 'What are the main domains and determinants of early retirement among school teachers?'. Therefore, a meta-analysis of empirical research that discussed eth domains and determinants of early retirement was conducted to address this question.

Problem Statement

The phenomenon of early retirement among school teachers in Malaysia has become a serious concern and the underlying factors of this situation should be addressed in the effort of solving this issue. Nonetheless, Topa et al. (2009) have claimed that causes contributing to the retirement decision are different from those of other organisational and national contexts. The empirical studies that investigated the association between factors of early retirement in developing countries are also finite.



Accordingly, this study specifically emphasised on the process of determining the factors leading to early retirement among school teachers using a meta-analysis approach. A few recommendations to reduce the cases of early retirement will be discussed in further details.

The proposed model for the meta-analysis is based on the model that was developed by Fisher, Chaffee and Sonnega in 2016. The person-environment fit model was integrated by Fisher et al. (2016) in order to understand the timing of retirement, including antecedent and subsequent correlates which were categorised into family, work and individual factors.





Figure 2: Conceptual framework of the study Source: 'Retirement Timing' Model by Fisher, Chaffee and Sonnega (2016)

In this research, factors lead to early retirement will be identified. The proposed model for the metaanalysis is based on the model conducted by Fisher, Chaffee and Sonnega in 2016. Fisher et al. (2016) have integrated the person-environment fit model to understand the timing of retirement, including antecedent and subsequent correlates which were grouped in family, work and individual factors.

Methodology

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed in the production and reporting of this systematic review.

Articles published from 2010 to 2018 were extracted from several online databases such as ScienceDirect, Springer, Emerald, Wiley, and Google Scholar. The search was conducted from March 2019 until May 2019. These articles were obtained using specific keywords, namely early retirement, early retirees and teachers. In addition to 1,535 hits that were acquired from the search strategy, 105 articles were further screened according to the reference, resulting in 1,640 articles in total. All titles and abstracts were screened following the removal of duplicates and 1,494 articles were rendered. After the full text was screened according to the selection criteria, a reference check was subsequently conducted on these articles. A total of 1,445 articles were excluded as the papers were either not related



to school teachers, not written in English or had no longitudinal design. Afterwards, a total number of 49 empirical studies in full text were collected. The articles fulfilled the inclusion criteria, namely (a) a sample of early retired teachers or any empirical measure of early retirement was included and (b) the factors leading to early retirement or relationship between factors and early retirement were selected. Finally, there were only 31 articles that completely satisfied the inclusion criteria. These papers were further assessed to determine whether one or more hypothesis were reported and eventually, 25 articles were reviewed. The flow diagram was presented in Figure 3.



Figure 3: Flow diagram of the research methodology. Source: Author compilation based on PRISMA method

An overview of all determinants that affected early retirement decision was developed using the chosen articles. For instance, if the aim of the paper was to evaluate the relationship between work characteristics, financial aspects and retirement, only work characteristics and financial variables will be included in the review. It should be noted that other confounding factors such as gender and age were not included in the data extraction as only determinants that were part of the hypothesis were emphasised. The determinants were then grouped into relevant domains based on the 'Retirement Timing' Model developed by Fisher et al. (2016).



Results

Based on the review, it was evident that the majority of the research was conducted in European countries, such as the United Kingdom, Finland and Germany. Studies that were carried out in the United States and Australia were also prevalent. It was further discovered that 18 out of 20 articles reported distinct analyses for men and women; the other two articles examined women only in the analysis. Also, there was only one paper that had focused on daycare teachers. The important details such as the first author, year of publication, the country where the study was conducted, characteristics of the population, sample size, and research outcome have been extracted from the studies.

The determinants of early retirement among teachers were classified into five domains, namely job stress factors (three determinants), job satisfaction factors (five determinants), financial factors (four determinants), health factors (four determinants), and work characteristics factors (nine determinants). The overview of these domains and determinants is illustrated in Table 1.

 Table 1: Overview of studies regarding domains and determinants of early retirement among school teachers from 2010-2018. Source: Author Compilation

Year	Job Stress	Job satisfaction	Financial	Health	Work characteristics
2010					-
2011		-	-		1
2012	-//	2	2	1	2
2013	1	- //	1	1	-
2014	-			+	-
2015	-	-		1	3
2016	-	-		1	2
2017	2	-	-	Fa	2
2018	S.	_			/ / -
Total	3	2	4	5	10

A total of 20 papers that have been published between 2010 and 2018 were extracted from online databases, such as ScienceDirect, Springer, Emerald, Wiley, and Google Scholar. The analysis revealed that the majority of the determinants were linked to work characteristics, such as workload, additional non-core work and overtime working hours which prompted school teachers to opt for early retirement. Additionally, there were five studies that explored the relationship between health and early retirement intention among school teachers, as well as four studies which examined financial aspects as the main domain leading to early retirement among school teachers. The association between job stress and teachers' intention to retire early was investigated in three studies and there were only two papers which have identified job satisfaction as the factor that led to early retirement among school teachers.

According to Wang and Shultz (2010), employees' intention to consider early retirement is influenced by many factors, including job, organisational, socioeconomic, and individual aspects, as well as family situation. Nonetheless, the influence of family on employees' decision to choose early retirement is limited. Rather, the motivation to leave the teaching profession and job dissatisfaction are closely related to teachers' working conditions and the job characteristics (Day et al. 2007; Klassen & Chiu, 2011; Skaalvik & Skaalvik, 2015). As far as the current review is concerned, Table 1 demonstrates that the determinants of factors which resulted in early retirement among school teachers primarily involved the domain related to work characteristics. Hence, this outcome correlates with that of previous studies as mentioned above.



It has also been found that early retirement among school teachers is greatly influenced by both physical and mental health factors. Teachers who have to cope with heavy workloads and stressful classroom situations are more susceptible to experiencing stress-related health problems (Beers, 2012). Studies have also suggested that teachers are exposed to a higher risk of cardiovascular diseases compared to other office-based professions as teachers are subject to extra workload. Work-related stress may cause teachers to be affected emotionally and psychologically, prompting them to look forward to early retirement.

Financial status was measured by household income in many studies which investigated the relationship between financial and early retirement. According to Loretto and Vickerstaff (2013), financial security that is resulted from a stable household income has been shown to be the dominant factor affecting retirement decisions. It was suggested that teachers would easily leave their profession when their economic conditions have been found to able to support their life after retirement. This finding has also been supported by many studies which discovered the association between a higher financial status and earlier retirement.

Moreover, Flook et al. (2013) have identified that stress and burnout were among the factors that influenced teachers to leave their profession early. Teachers who are unable to deal with demanding working conditions will experience stress and mental exhaustion and subsequently opt for early retirement (Feldman, 1994; Henkens & Leenders, 2010). The current paper has found that the stress factors which were addressed in the literature included long working hours, excessively large class sizes, lack of autonomy, students' behavioural problems, as well as the pressure exerted by the administrators. It was also found that job dissatisfaction is one of the domains which leads to early retirement. Job satisfaction encompasses both intrinsic and extrinsic factors. While intrinsic factors include work environment, profession autonomy, group cohesion with peers and organisational aspects, extrinsic factors involve stress, workload, working hours, work activities, salary, and benefits, as well as positive perceptions of organisational opportunities (Wernimont, 1966; Perrachione, 2008; Zeinabadi, 2010).

Conclusion

The present article contributes to the retirement literature by presenting a comprehensive review of the existing studies of early retirement among school teachers. Factors which contribute to early retirement in an education setting, including individual, financial and work-related aspects were tabulated with an aim to provide a framework for organising a review of the literature about the factors lead to job satisfaction and early retirement among school teachers.

The increasing number of teachers who choose the early optional retirement is a serious indication for researchers to examine the factors impacting this decision (Taylor et al., 2016). Based on the comprehensive literature review of early retirement among school teachers, it is discovered that the emphasis has been given on domains related to work characteristics and health, while there is a lack of discussion on the effect of job satisfaction on the early retirement decision. Although most of the previous studies have identified work characteristics as the significant factor which leads to early retirement, the relationship between these five domains has not been clearly addressed.

It should be noted that there no research was conducted to identify and examine the factors leading to early retirement among school teachers in 2018. Furthermore, none of the existing research in this area of topic has employed mixed-method design, leaving a methodological gap for academicians. Future research employing mixed methods approach must be conducted in order to establish a thorough understanding of the early retirement phenomenon in Malaysia.



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Mergers in Higher Education – The Case of NKUST

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ABSTRACT

Higher education mergers have become prevalent around the world since the 1960s, there have been many mergers in higher education in Australia, USA, and several European countries, in order to achieve greater efficiency, higher quality and reduce public budgets. In February 2018, Kaohsiung University of Science and Technology (NKUST) was merged from three national universities in Kaohsiung. This merger plan was initiated by the Ministry of Education under the University Law, Article 7, and approved by the Executive Yuan, making this the first case of involuntary mergers in Taiwan. The objective of this study is to provide a case study of the merger results of NKUST. We first review the merger process of NKUST, then we examine and compare institutional data prior to and after the merger, particularly student data from the undergraduate level, which stands for 80% of the total students. Results showed that due to the geographical proximity of the three universities, there are similarities in student composition in terms of their residence location, and the distribution of work location within 5 years after graduation. We found no significant difference in enrollment rates, however, the minimum admission for the entrance exam has declined. It is speculated that despite the original three schools have their history and reputation, a newly merged institution still lacks its own identity and reputation. In sum. we used historical data to help justify the merger can be beneficial for talent cultivation, however. since NKUST is still at its early stage of the merger, longitudinal research would provide more insights into higher education mergers.

Keywords: Mergers, Higher Education, Institutional Research, Enrollment, Admission.





Introduction

The landscape of higher education has changed substantially in the past twenty years in Taiwan. Since the 1980s, Taiwan went through a phase of rapid expansion in higher education, several universities and colleges were established, thus offering more opportunities for students to enter higher education. In 1988, the gross enrollment in higher education has passed 15%, reaching a mass educational system according to Trow's classification (Trow, 1970, 2000). Until 1997, the 18-21 school-age population was 1,601,471, the same year, 807,567 students were admitted to higher education institutions, the ross enrollment reached over 50%, Taiwan has entered a stage of universal education. The number of higher education institutions has reached the highest number of 164 in 2007.

The expansion of higher education institutions in Taiwan has brought diversity and autonomy, guided by the amendment and implementation of the University Law in January 1994. However, the decreasing total fertility rate has largely impacted higher education, resulting in the termination of certain departments or even universities. Also, international competition has become tight after joining the World Trade Organization (WTO) in 2002, it is inevitable to face the issues regarding resource allocation and quality of higher education, the government began to emphasize and pursue quality improvement for higher education. To do so, relevant policies were made to encourage national universities to form alliances, research centers, and integrate resources through mergers or regional cooperation.

Higher education mergers have become prevalent around the world since the 1960s, there have been many mergers in higher education in Australia, USA, and several European countries, in order to achieve greater efficiency, higher quality and reduce public budgets (Skodvin, 1999). In Taiwan, there were several cases of mergers and reforms between universities since the 2000s, and the government continues to promote mergers between higher education institutions. On January 10, 2011, the Legislative Yuan passed the amendment on Article 7 of the University Law. It stipulates that the Ministry of Education (MOE) may lead and propose mergers plans between public universities, the merger plan approved by the Executive Yuan shall be implemented by such relevant national universities. The amendment will then influence higher education reform in Taiwan. Further, in 2015, the MOE project report to the Legislative Yuan proposed that public universities will be prioritized to merge, based on two criteria: with students fewer than 10,000 and if it is located in a municipality that has more than two public universities.

Under this context, the Kaohsiung University of Science and Technology (NKUST) was merged from three national universities in Kaohsiung in February 2018. This merger plan was initiated by the MOE and approved by the Executive Yuan, making this the first case of involuntary mergers in Taiwan. Therefore, the current study aims to introduce the merger process of NKUST and provide a case study. To do so, we examine and compare institutional data prior to and after the merger, particularly student data from the undergraduate level, which stands for 80% of the total students.

According to Harman (2000), proposed mergers in Australia were often seen as a threat to unique institutional strengths and traditions, but on the other hand, the potential benefits are a larger and more diverse institution, stronger academic programs, increased efficiency and cost-savings, and improved student services and infrastructure. Major organizational upheavals and reorganization efforts may take place after the merger. The following sections will describe the merger of NKUST, and compare some key university metrics prior and after the merger.

The Merger Process of NKUST

NKUST is established and merged from three public technical universities in Kaohsiung: National Kaohsiung University of Applied Sciences (KUAS), National Kaohsiung First University of Science and Technology (NKFUST), and National Kaohsiung Marine University (NKMU). The merger plan dates back to 2013, when two of the universities, NKFUST and NKMU, initiated a merger plan, KUAS proposed to join in. However, different stakeholders of the university have different opinions towards the merger, therefore, in June 2015, the university assembly vetoed joining the merger. After NKFUST



and NKMU presented their merger plan to the Executive Yuan for approval, in May 2017 KUAS agreed to merge with the other two universities, after much discussion and consideration. The merger of three universities was supported by the Executive Yuan, and in August 2017 the MOE then took an active role in the merger process, in accordance with the University Law, Article 7, section 2, a Merger Initiative Committee is organized, and NKUST is established in February 2018, with a total of 5 campuses across Kaohsiung city, it became the largest technological university in Taiwan.

Although the newly established university is introduced to the public, it still takes time for academic departments and administrative units from the previous 3 universities to amalgamate. In June 2018 the General Education Committee and Educational Centers were merged and integrated, and the new organizational regulations of NKUST was approved in February 2019, the administrative units were then reorganized, as for academic departments, 4 of the overlapping colleges will be merged or restructure, scheduled to take place in August 2019.

Examining Student Enrollment Data

Enrollment by Home Location

We first examine student enrollment by home location for the past 5 years, and found that the distribution by geographical location in Taiwan resulted in similar patterns, as shown in Figure 1. Indicating that the student source of the three original schools or campuses overlaps. Due to the proximity of location, the three original universities have similar composition of students by geographical locations.



Figure 1. Student Enrollment by geographical location in Taiwan

Incoming Students by High School

We examine the top 10 high schools where incoming students graduated from for the past 5 years. Overall, the results yielded 20 high schools, 4 high schools appeared in all the top 10 lists; Jiangong/Yanchao Campus and First Campus share 6 high schools on their top 10 list. Since the faculty



of Nanzhi/Cijin Campus focuses on cultivating marine affairs professionals, the top 10 incoming student high schools include 3 maritime vocational high schools and 1 agricultural vocational high school.

A further examination of the student application data in the academic year 2018, the major admission pathway is Application by Referrals. Students will have to fill in their application and choose their preferred departments. Through analyzing students' application data by the Taiwan Institutional Research Cooperation, we are able to identify competing universities or departments. Figure 2 shows the competing relationship between the three original universities, the arrows and the percentage indicate the potential of inflow or outflow from each university, the numbers in parentheses indicate the number of overlapping applications. The potential percentage of inflow and outflow were calculated using the association rules with Apriori algorithm. Results showed that there are more overlapping applications between Jiangong/Yanchao and First Campus. If we look at the top 5 competing institutions for the past 3 years, the three campuses of NKUST were on each other's top 5 list, indicating a strong connection between the three campuses.



Figure 2. Potential Student Inflow and Outflow between Campuses in 2018 Data source: 2019 Student Source Competition Analysis Report, TIRC.

Freshman Enrollment Rates

An examination of freshman enrollment rates from the past three years. Comparing enrollment rates of 2018 and 2017 was not significant, t(38)=-.956, p=.894 (ns), the difference between 2018 and 2016 is also not significant, t(38)=-.931, p=.257 (ns).

								-		•					
Campus	Ji	ango	ng/Yanc	hao			Nanzhi/Cijin				First				
School Year	2016	016 2017 2018		2016	2	2017		2018	2016	2017		2	2018		
5-Year Junior College						98	•	96		97.24					
2-Year Technical Program	100	\bullet	87.18		100	60		98.89	▼	77.78	100	-	95.38	_	95.38
4-Year Technical Program	99.07	-	98.57	▼	98.35	96.98	-	95.94		96.46	98.1	-	97.85		97.94
Master Program	90.7	\mathbf{T}	78.61		82.98	70.73		71.5		77.27	88.04	-	84.4	-	79.38
PhD Program	81.63		97.62		97.67	100	\mathbf{T}	88.89		100	100	-	86.49		100
2-Year Technical Program (C)	83.14		99.17		100										
4-Year Technical Program (C)	84.71		96.06		99.82	90.61	-	82.59		88.55					
In-Service Master's Program	96.2	\bullet	87.52		94.94	76	-	74.53		79.63	80.7		81.58		88.01
College of Continuing Education	97.56		100	-	100										
	Campus School Year 5-Year Junior College 2-Year Technical Program 4-Year Technical Program PhD Program 2-Year Technical Program (C) 4-Year Technical Program (C) In-Service Master's Program College of Continuing Education	Campus Ji School Year 2016 5-Year Junior College 2016 2-Year Technical Program 100 4-Year Technical Program 99.07 Master Program 90.7 PhD Program 81.63 2-Year Technical Program (C) 83.14 4-Year Technical Program (C) 84.71 In-Service Master's Program 96.2 College of Continuing Education 97.56	CampusJiangoSchool Year20165-Year Junior College2-Year Technical Program2-Year Technical Program99.074-Year Technical Program90.7PhD Program81.632-Year Technical Program (C)83.144-Year Technical Program (C)84.71In-Service Master's Program96.2College of Continuing Education97.56	CampusJiangong/YancSchool Year201620175-Year Junior College222-Year Technical Program100▼ 87.184-Year Technical Program99.07▼ 98.57Master Program90.7▼ 78.61PhD Program81.63▲ 97.622-Year Technical Program (C)83.14▲ 99.174-Year Technical Program (C)84.71▲ 96.06In-Service Master's Program96.2▼ 87.52College of Continuing Education97.56▲ 100	CampusJiangong/YanchaoSchool Year201620175-Year Junior College	Campus Jiangong/Yanchao School Year 2016 2017 2018 5-Year Junior College 2017 2018 2-Year Technical Program 100 ▼ 87.18 ▲ 100 4-Year Technical Program 99.07 ▼ 98.57 ▼ 98.35 Master Program 90.7 ▼ 78.61 ▲ 82.98 PhD Program 81.63 ▲ 97.62 ▲ 97.67 2-Year Technical Program (C) 83.14 ▲ 99.17 ▲ 100 4-Year Technical Program (C) 84.71 ▲ 96.06 ▲ 99.82 In-Service Master's Program 96.2 ▼ 87.52 ▲ 94.94 College of Continuing Education 97.56 ▲ 100 ■ 100	Campus Jiangong/Yanchao School Year 2016 2017 2018 2016 5-Year Junior College 98 98 98 2-Year Technical Program 100 \$7.18 100 60 4-Year Technical Program 99.07 \$98.57 \$98.35 96.98 Master Program 90.7 \$78.61 \$82.98 70.73 PhD Program 81.63 \$97.62 \$97.67 100 2-Year Technical Program (C) 83.14 \$99.17 100 2-Year Technical Program (C) 84.71 \$96.06 \$9.82 \$90.61 In-Service Master's Program 96.2 \$87.52 \$94.94 76 College of Continuing Education \$97.56 100 \$100 \$100	Campus Jiangong/Yanchao Nan School Year 2016 2017 2018 2016 20 5-Year Junior College 98 ♥ 2-Year Technical Program 100 ♥ 87.18 100 60 ▲ 4-Year Technical Program 99.07 ♥ 98.57 ♥ 98.35 96.98 ♥ Master Program 90.7 ♥ 7.8.61 ▲ 82.98 70.73 ▲ PhD Program 81.63 ♠ 97.62 ♠ 97.67 100 ♥ 2-Year Technical Program (C) 83.14 ♠ 99.17 ▲ 100 ● ● 4-Year Technical Program (C) 84.71 ▲ 96.06 ▲ 99.82 90.61 ♥ In-Service Master's Program 96.2 ♥ 87.52 ▲ 94.94 76 ♥ College of Continuing Education 97.56 ▲ 100 ■ 100 ♥ ♥	Campus Jiangong/Yanchao Nanzhi/Ciji School Year 2016 2017 2018 2016 2017 5-Year Junior College 98 96 2-Year Technical Program 100 ₹87.18 100 60 \$98.89 4-Year Technical Program 99.07 ₹98.57 ₹98.35 96.98 ₹95.94 Master Program 90.7 ₹78.61 \$82.98 70.73 ₹71.5 PhD Program 81.63 \$97.62 \$97.67 100 ₹88.89 2-Year Technical Program (C) \$8.14 \$99.17 100 ₹88.89 2-Year Technical Program (C) 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Education 97.56 100 100 100 100 100 100 100 100 100 <td>Campus Jiangong/Yanchao Nanzhi/Cijin School Year 2016 2017 2018 2016 77.27 80.01 \checkmark <math>? <math>? <math>? <math>? <math>? <math>? <math>? <math>? <td< math=""></td<></math></math></math></math></math></math></math></math></td> <td>Campus Jiangong/Yanchao Nanzhi/Cijin First School Year 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2018 2017 2018 2017 2018 2017 2018 2016 97.83 3 96.98 97.64 98.13 97.85 96.98 96.46 98.14 97.85 97.85 97.85 77.27 88.04 84.4 910 100 88.89 100 100 86.49<td>Campus Jiangong/Yanchao Nanzhi/Cijin First School Year 2016 2017 2018 2016 2017 2018 2016 2017 2018 2016 2017 2 2 2 2 2 2 2 98 96 97.24 9 3 9 9 3 9 9 3 9 9 3 9 3</td></td>	Campus Jiangong/Yanchao Nanzhi/Cijin 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Table 1. Freshman Enrollment Rate by Campus

Note: Enrollment rates compared to the previous school year: Aincline — equal to Technie



Student Employability

Student employability data were obtained from the student survey after graduation. Alumni are invited to answer the survey 1, 3 and 5 years after they graduate. From the survey conducted after 1 year of graduation, respondents were asked to report the length of finding their first job after graduation. Up to 95% of the alumni reported to found their first job within 6 months after graduation across all campuses.

School Year		2015			2016	
Campus	Jiangong/Yanchao	Nanzhi/Cijin	First	Jiangong/Yanchao	Nanzhi/Cijin	First
Found a job before graduation	31.34%	23.67%	32.7 <mark>6%</mark>	29.84%	21.40%	24.78%
Within 1 month	21.39%	33.7 <mark>6%</mark>	31.33%	32.3 <mark>6%</mark>	41.05%	32.90%
1-2 months	18.56%	9.54%	16.12%	13.04%	14.21%	17.36%
2-3 months	12.72%	5.50%	8.67%	11.82%	8.03%	8.98%
3-4 months	5.78%	5.50%	4.29%	4.28%	3.51%	4.66%
4-6 months	7%	14.13%	4.39%	4.47%	7.53%	7.17%
6 months or above	3.21%	8.07%	2.45%	4.19%	4.26%	4.15%
Survey Return Rate	70.64%	51.14%	88.00%	87.71%	99.94%	97.42%



Results from the Uniform Entrance Exam

The data provided above showed very similar patterns in terms of incoming students and student profiles from the three original universities. However, as formerly competing institutions, we have seen an impact on the most recent entrance exam through the channel of Application by Referral. From this channel, students from vocational high schools are required to take the Uniform Entrance Exam composed of common subjects and professional subjects. The professional subjects are different for different professional groups. After the exam, there will be 2 channels of entering 4-Year Programs and 2-Year Junior Colleges, which are Admission by Referrals and Registration and Assignment. For Admission by Referrals, each department will announce their admission quotas and select certain number of candidates for a second-round of interview based on the exam scores and criteria. Usually, the number of candidates selected for the second-round interview will be 2 to 3 times the admission quota. As for applicants, they may choose up to 3 departments they wish to apply for. Successful candidates will be referred to individual universities, they are required to send in extra application materials to be reviewed by the department faculty and to be personally interviewed by a panel of faculty members.

We provide data collected from the past three years in Table. 3. We compare the number of departments that recruited enough candidates to enter the second-round interview, and the number of departments that did not recruit enough candidates as planned, the number rose up this year. As for the test scores, the Joint Commission of Technological and Vocational College Admission Committee (Joint Admission Committee) only announced the minimum score for students who were selected for a referral to the individual departments. From Table 3 we tabulated the average minimum score across all departments for the 3 campuses respectively, and provide the highest and lowest minimum score. This provides an overview of how the minimum requirements of entering NKUST change over the past 3 years.

One reason is that this year the Joint Admission Committee announced that universities may restrict applicants to only apply for one department within their university, instead of up to 3 departments in the same university, NKUST also adopts this rule this year. For NKUST, some departments with the same focus or professional group across different campuses were previously competing, with this new policy, prospective students have less opportunity to enter NKUST, and it is likely that the competition between different campuses within KNUST has become more intense. Further, the colleges and academic departments were planned to merge and restructure in August, applicants are subjected to this change, however, prospective students who were unfamiliar with this change will face difficulties in filling their application.



	Year	Year 2017				2018			2019	
	Campus		Nanzhi/ Cijin	First	Jiangong/ Yanchao	Nanzhi/ Cijin	First	Jiangong/ Yanchao	Nanzhi/ Cijin	First
No. of Doportmonts	Recruited enough candidates	31	37	38	31	38	38	29	29	26
No. of Departments	Did NOT recruit enough candidates	1	1	1	1	0	2	3	8	14
Ave. Minimum Score Across Departments		58.13	52.24	59.41	58.63	52.61	59.7	54.13	45.7	47.9
Minimum Score - Highest		68	64	68	66	64	67	65	61	63
Minimum Score - Lowest		42	33	33	44	35	37	25	20	23

Table 3. Exam Results of Admission by Referrals from 2017-2019

Conclusions, Limitations and Recommendations

From the data examined in this article, we found consistencies in student source among the three original universities. According to Skodvin (1999), geographical proximity is an important key to merger success based on international experiences. Due to the location, the three campuses of NKUST attracts more percentage of students from the southern part of Taiwan, also the student composition has been similar. However, the overlap of student source has made an impact on admissions and student recruitment. In the academic year 2018, which is the same year after the merger, colleges and academic departments were still the same as before, student source remained consistent with the previous year. In the academic year 2019, colleges and academic departments will be restructured, we see a decrease in the minimum required uniform entrance exam scores from admission by referrals, this might affect the ranking and reputation of the merged university.

Although institutional mergers may lead to increased resources and greater competitiveness, and are expected to bring long-term benefits to the institution. According to Harman, Beswick, & Schofield's (1985) case studies in Australian institutional mergers, it takes approximately 5 years for new institutions to work on track. At this time being, we were unable to conclude the success or failure of the merger, only a comparison between student enrollment data before and after a short time after the merger. Further, voluntary mergers appear to be more successful than involuntary mergers (Skodvin, 1999), despite the tree universities have discussed merger plans before, the final decision was made top-down from the MOE, making this the first case of involuntary merger in Taiwan, after the decision, the period for preparing the amalgamation was very short. As NKUST is still at its early stage of the merger, the current research only takes certain student enrollment data into account, more data and aspects concerning the merger should be collected to provide a better picture of the merger. Also, a more longitudinal monitor of the merger process may provide more insights into the topic of merger success among higher education institutions.

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Quality Assurance Mechanism in School Governance and Operations through School-Based Management (SBM) Standards

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ABSTRACT

School governance is equipped with mechanism designed to realize the thrust of education as guided by the four standard principles of School-based Management (SBM) that serves as quality assurance of the Department of Education as per Republic Act 9155 (Governance of Basic Education). This mandates to provide efficient delivery of educational services and translation of knowledge, skills, and attitudes into functional learning outcomes of learners. Much has been studied about SBM, but there is no attempt to study about the status of central schools regarding their level of compliance. This study aimed to assess the compliance level with SBM standard principles among central schools of Northern Negros, Region VI, Philippines, in preparation to the quality of learners' future career life. A descriptivecomparative research design was employed in the study. For data collection, an SBM standardized survey form with necessary supporting documents related to curriculum and instruction, leadership and governance, accountability and continuous improvement, and management of resources was utilized. The result indicates that these central schools are on Level 2 categorized as maturing with 76.7% level of compliance where most of the SBM standard principles were complied and implemented. This shows that school governance integrates wider community participation and significantly improves performance. Consequently, noteworthy implication signifies that these schools are capable of developing structures and sustaining continuous improvement in school governance and operations that provides direction to educational process of the learners. Hence the utilization of this study is to formulate policy for educational development.

Keywords: Quality Assurance, School-Based Management (SBM), School Governance and Operations, SBM Standard Principles, and Department of Education





Introduction

School-based management (SBM) is a formal alteration of governance structures and a form of decentralization that identifies the individual school as a primary unit of improvement. The redistribution of decision-making authority is the primary means through which improvements might be stimulated and sustained (Malen, Ogawa, & Kranz, 1990; Brint, 2017). In the context of education, educational decentralization is a worldwide phenomenon (Fullan & Watson, 2000; Farrell, Manion, & Rincón-Gallardo, 2017). It is a key feature in institutional reform throughout the world (Patrinos & Fasih, 2009; King & Ozler, 1998). Responsibility and decision-making over different types of school operations are transferred to principals, teachers, parents, sometimes students, and other school community members. The school-level actors, however, have to conform to, or operate, within a set of centrally determined policies. (Gertler, Patrinos, & Rubio-Codina, 2006; Khattri, Ling, & Jha, 2012).

In the Philippines, SBM is a Key Reform Thrust 1 (KRT1) of the Basic Education Reform Agenda (BESRA). It considers the school as the key provider of education meant to broaden and sustain further the Department of Education's (DepEd) current effort of implementing the Schools First Initiative (Valisno, 2010). BESRA aims at improving the basic education outcomes through a broadly participated, popular movement featuring a wide variety of initiatives. Congruent with the KRTs of BESRA, DepEd pursues SBM to raise the quality of education in the Philippines and to attain the Education for All (EFA) goals by improving its operations and delivery of services through autonomous decision-making powers to school officials in terms of school repairs and maintenance, procurement of textbooks, supplies, and equipment as well as human resource development (Bautista & Rose, 2005).

In line with the DepEd's thrust, the two central schools in the Division of San Carlos City, Negros Occidental, Philippines have implemented SBM since 2008. However, the gap is very apparent that despite their self-evaluation mechanism, like the rest of the other central schools in the Division, these schools have not acquired the national Level 3 accreditation as expected of every central school.

In adherence to quality management principle, it is imperative to assess the SBM compliance of these central schools in terms of the SBM standard principles. Apparently, the objective of this assessment is to determine the note-worthy areas and to address opportunities for improvement (OFI) as bases in making the three-year development plan. Hence, this study was conducted to assess the level of compliance with the SBM standard principles in the two central schools during School Year 2018-2019. Specifically, it sought to find out the level of compliance with SBM standard principles in the areas of leadership and governance, curriculum and instruction, accountability and continuous improvement, and management of resources as assessed by the internal and external assessors. It also sought to determine if there is a significant difference in the level of compliance with the SBM standard principles in the same areas as assessed by internal and external assessors.

Framework of the Study

This study is anchored on the philosophy of Total Quality Management (TQM) by Deming which focuses on management process (Deming, 1982). It can be used by organizations through continuous quality improvement plans to the fulfillment of the vision and mission of the organizations. TQM represents the foundation for continuous learning improvement for learners and teachers (Ross, 2017).

Deming's Chain Reaction Theory states that improvement in quality leads to lower costs because it results in less rework, fewer mistakes, fewer delays, and better use of time and materials. Consequently, lower cost leads to productivity improvements (Deming, 2000). Relatively, Evans and Lindsay (2016) reiterated that an effective quality management system needs to integrate with the organizational system, focus on actionable decision making, seek the causes of problems, and improve processes and systems. It should drive the principle of quality management throughout the organization by fostering effective practices to implement the principles.



Consequently, the Theory of Trait Leadership describes leader effectiveness as the amount of influence a leader has on individual or group performance, followers' satisfaction, and overall effectiveness (Derue, Nahrgang, Wellman, & Humphrey, 2011).

Quality Assurance is a philosophy and a process in which all the functions and activities of an institution are treated equally, planned, controlled, and implemented systematically and scientifically (Allais, 2009; Doromal, 2010; Lim, 2018).

A school that aims at continuous improvement of its performance is operating with good leadership and governance. It consists of a development plan that is collaboratively developed and regularly reviewed by its stakeholders and the community and a clear structure and work arrangements that promote shared leadership and governance. It likewise consists of a relevant curriculum and instruction that provide for the development needs of all types of learners; a sense of accountability and continuous improvement with a clear definition of roles, responsibilities and accountabilities; and effective management of resources. These indicators of continuous improvement are characterized by a shared vision and mission which are the collective dreams and commitment of the major stakeholders to pursue and realize planned improvements, shared decision-making by the team of its stakeholders, collaboration, autonomy, accountability, shared governance, and transparency (Deming, 2000; DepED, 2012).

One of the simplest theories of SBM is that people who primarily benefit from education including children, their parents, and other community members should have a say in the provision of education (Abu-Duhou, 1999). A good education involves not only physical input such as classrooms, teachers, and textbooks but also opportunities that lead to better instruction and learning outcomes. Education systems place extreme demands on the managerial, technical, and financial capacity of governments. Thus, education as a service is too complex to produce and distribute efficiently in a centralized fashion (LaRocque & Boyer, 2007). Hence, the decision on the aspect of school management and its stakeholders may start to build upon makes assessment imperative. It is also important to determine the directions of improvements to attain the level of its implementation particularly the SBM implementation program (DepEd, 2005, 2009; BESRA,2012).

Republic Act 7160, otherwise known as the "Local Government Code of 1991", has originally formulated policies of decentralization as a response to the new challenges for sustainable human development. It enables local communities to become self-reliant and more effective partners in the attainment of national goals. This law was the basis of the DepEd's Ten-Year Master Plan (1995-2005) to entrust more decision-making powers to local school officials in terms of school repairs, maintenance, and procurement of learning materials, school supplies, and equipment necessary for the improvement of its operations and delivery of services to the clientele.

Subsequently, DECS Order No. 230, series of 1999 further defined decentralization to mean promotion of SBM; transfer of authority and decision-making powers from central and regional offices to the divisions and schools; sharing of education management responsibilities with other stakeholders such as the Local Government Units (LGUs), Parents, Teachers and Community Association (PTCA), Government and Non-Government Organizations (GOs and NGOs); and devolution of education functions.

Additionally, Republic Act No. 9155, otherwise known as "Governance of Basic Education of 2001", has instituted the framework of governance for basic education and other purposes that mandates the implementation of shared governance and the administration of public schools. It has granted the school heads the authority, responsibility, and accountability regarding the development of school improvement programs, management of school resources, and fostering of effective school-family-community linkages.

In 2007, the BESRA became the evolving agendum of the DepEd to improve the basic education outcomes. As disseminated through DepEd Order No. 83, series of 2007, dated February 26, 2007, the



implementation of BESRA is the priority of DepEd management headed by the DepEd secretary as the overall director of its implementation (DepEd Order No. 83, 2007).

The overall objectives of BESRA are contained in policy actions that seek to create a basic education sector that is capable of attaining the country's EFA objectives by 2015. These objectives include adult-functional literacy, universal school participation and elimination of drop-outs, and repetition in the first three grade levels. Similarly, it mandates the universal completion of the full cycle of basic education schooling with satisfactory achievement by all at every grade level and total community commitment for the attainment of basic education competencies for all.

To achieve these goals for the basic education sector, BESRA focuses on five key reform thrusts. These are to improve all schools continuously by enhancing the teachers' contribution to learning outcomes, increase social support, attain desired learning outcomes and improve the impact of learning outcomes from education, complimentary early childhood and alternative learning systems, and private sector support. The thrusts also aim to change the institutional culture of DepEd and provide better support to these key reform thrusts. In short, these thrusts are part of the schools' and teachers' social support to learning, complementary interventions, and DepEd's institutional culture (BESRA, 2012). From 1998 to 2006, DepEd piloted the Third Elementary Education Project (TEEP) and the SBM which is a nine-year investment program funded by the World Bank and Japan Bank for International Cooperation.

Specifically, the project aimed to improve the learning achievements, completion rates, and access to quality elementary education to build institutional capacity of the DepEd in managing changes. It is also intended to actively involve the community and the local government in a large-scale effort to attain quality education (NEDA, 2011). SBM was not a specific sub-component of TEEP per se. At the beginning of the later part of the project cycle in the school year 2003-2004, it was the central integrating framework for directing project inputs and building local capacity for education planning and implementation. World Bank Report states that TEEP feature is explicitly defined to mobilize community support for the school, catalyze ownership of the education processes and outcomes, and enhance transparency and accountability (The World Bank, 1996).

Thus, this study utilizes the Plan, Do, Check, and Act (PDCA) cycle for quality continuous improvement model as guide in the implementation of TQM. This model consists of the logical sequence of four repetitive steps for continuous improvement and learning (Deming, 1950) to provide a clear perspective on how to carry out the study and the direction for continuous improvement specifically of the central schools that are worth accrediting with the SBM.

Methodology

The research design used in this study was descriptive-comparative. This approach is used in comparing two or more things with a view to discover something about one or all of the things being compared (Creswell, 2017). Hence, the comparison of the assessment on the level of compliance with the standard principles of SBM in the biggest and smallest central schools by the internal and external assessors through inter-rater technique was conducted. The internal assessors composed of four SBM coordinators in each central school, while the external assessors composed of four SBM assessors of DepEd (EPS-*Education Program Supervisors* and SEPS-*Senior Education Program Specialist*). The external assessors were the certified SBM assessors by the Philippine Accreditation System for Basic Education (PASBE), while the internal assessors were the SBM coordinators designated by their respective school heads. The objectivity of the assessment tool, followed by the verification of the document that support the ratings reflected in the assessment tools. An FGD (Focus Group Discussion) with the key informants was conducted to obtain in-depth information. Finally, an ocular inspection was done by both assessors to verify the authenticity and the veracity of the claims of the key informants and document presented.



External	Internal	Areas of SBM Standard Principles	Total
SEPS	Teacher – SBM Coordinator	Leadership and Governance	2
EPS	Teacher – SBM Coordinator	Curriculum and Instruction	2
SEPS	Teacher – SBM Coordinator	Resource Management	2
EPS	Teacher – SBM Coordinator	Accountability and Continuous Improvement	2

Table 1.	Distribution	of Assessors
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The data were collected through a standardized SBM assessment form. It covered the four standard principles such as leadership and governance with five standard indicators; curriculum and instruction with seven standard indicators; accountability and continuous improvement with five indicators; and management of resources with five standard indicators. It is indicated for Level 3-Advanced (Accredited) which means that the school ensures the production of intended outputs/outcomes and meeting all standards of a system fully integrated into the local community and is self-renewing and self-sustaining; for Level 2 categorized as maturing school indicated that the school is introducing and sustaining continuous improvement process that integrates wider community participation and significantly improve performance and learning outcomes; and for Level 1-Developing which means that the school is developing structures and mechanisms with acceptable level and extent of community participation and impact on learning outcomes.

With due permission from the DepEd, SBM assessment form was officially utilized by both internal and external assessors. Supporting document evidences, such as, attendance sheet of internal and external stakeholders during the formulation of school improvement plan, annual accomplishment reports, minutes of annual planning of the team committee and community meeting, record of the SWOT (Strength, weaknesses, Opportunities and Threats) analysis, covenant of commitment by GOs and NGOs (Government and Non-Government Organizations) and other stakeholders, flyers of school activities, barangay resolutions relevant to child welfare, certificate of trainings, classroom observation and inventory of learning materials, and actual ocular inspection on the facilities and equipment. Moreover, FGD among the key informants formed-part in the assessment to validate and to establish objectivity in the numerical rating of the assessors and establish the veracity of the claim during the assessment process.

In analyzing the data, descriptive-comparative scheme was used. Furthermore, the study employed the Kendal Tau Coefficient. This statistical tool is appropriate in determining the degree of concordance or disconcordance between two sets of data which are derived from a non-parametric distribution.

Results

The result on the compliance of School A, the biggest central school, in Table 2 showed that the school has complied with the Level II status which is considered as maturing school. This means that the school is on the level of introducing and sustaining continuous improvement process that integrates wider community participation through the involvement of parents, alumni, community leaders, local industries, and other community residents in every school's initiated activities, and significantly improves performance and learning outcomes. This result implies that most of the mandated standard principles are implemented and complied for continuous improvement. It is noticeable that the assessment ratings vary between the internal and external assessors.

Level of Compliance with SBM Standard Principles of Central Schools

Table 2. Level of Compliance with SBM Standard Principles of School A

		Interi	nal	External			
SBM Standard Principles	Mea	Complianc	Interpretatio	Mea	Mea Complianc Interpr		
	n	e	n	n	e	n	



Leadership and Governance	1.68	Level II	Maturing	1.72	Level II	Maturing
Curriculum and Instruction	2.63	Level II	Maturing	2.50	Level II	Maturing
Accountability and Continuous Improvement	2.68	Level II	Maturing	2.68	Level II	Maturing
Management of Resources	2.21	Level II	Maturing	1.52	Level II	Maturing
As a Whole	2.30	Level II	Maturing	2.11	Level II	Maturing

For School B compliance, the findings in Table 3 revealed that the school is also in Level II or maturing level of compliance with the four SBM standard principles as evident in the obtained rating of 1.81 and 2.01, respectively. Moreover, it can be noted that School B is still developing or in its Level I compliance in the area of leadership and governance. The internal and external assessors, being composed of program supervisors, specialists, and teacher-coordinators are involved in supervising and monitoring every school of the Division. As such, they have been tasked to inform and advise the school heads with regards to the areas that need improvement (BESRA, 2010). The result further signifies that School B, the smallest central school in terms of students' population, being at the National SBM Level II status, is still in the process of developing structures such as SBM budgeting, personnel and instructional decision-making, and mechanisms such as the periodic monitoring and evaluation system and transparency for the successful implementation of the four SBM standard principles that will lead to introduce and sustain continuous improvement process to integrate wider community participation and improve performance significantly.

Table 3. Level of Compliance with SBM Standard Principles of School B

		Intern	al	External				
SBM Standard Principles	Moon	Complian Interpretatio		Mea	Complian	Interpretatio		
	wiean	ce	n	n	n ce r			
Leadership and Governance	1.33	Level I	Developing	1.04	Level I	Developing		
Curriculum and Instruction	2.21	Level II	Maturing	2.49	Level II	Maturing		
Accountability &	1.20	Level I	Developing	2.11	Level II	Maturing		
Continuous Improvement			Level Leveloping					
Management of Resources	2.51	Level II	Maturing	2.40	Level II	Maturing		
As a Whole	1.81	Level II	Maturing	2.01	Level II	Maturing		

Difference in the Level of Compliance with the SBM Standard Principles of Central Schools

Using Kendal Tau Coefficient, the results show a τ -value of 0.963 which is interpreted as not significant at 0.05 alpha level. The findings presented in Table 4 showed that the disconcordance or disagreement between the assessment of the internal and external assessors on the compliance of School A with the SBM standard principles is negligible and does not result in serious situations that would cause a total bug-down of the quality education in School A.

Table 4. Significant Difference between the School A Internal and External Assessors

Assessor	Mean	df	t-value	p-value	Interpretation
Internal	2.30	274	0.062	0.227	Not Significant @ 0.05 slabs lovel
External	2.11	274	0.963	0.337	Not Significant @ 0.05 alpha level

In the same wavelength, the result in Table 5 for School B shows a τ -value of -1.336 which is also interpreted as not significant at 0.05 alpha level. The findings also showed that there is no significant difference in the disconcordance between internal and external assessments of School B compliance with SBM standard principles. In addition, the negative (-) t-value signifies that School B internal assessors underrated themselves when compared with the external assessor.

Table 5. Significant Difference between the School B Internal and External Assessors



Assessor	Mean	df	t-value	p-value	Interpretation
Internal	1.81	274	1 226	0.192	Not Significant @ 0.05 alpha laval
External	2.01	274	- 1.550	0.185	Not Significant @ 0.05 alpha level

Despite the discrepancies between the internal and external assessors, the t-test for independent samples showed no significant difference as manifested by p-values (0.183 and 0.337) which are greater than 0.05. These figures mean that the difference between the ratings of the assessors, whether internal or external, is not significant and may simply be due to sampling selection. Therefore, there is no strong evidence to prove that the difference is significant.

The accounts of the key informants from the FGD suggest the importance of a quality management system for continuous quality improvement to fully comply with the Level III standard principles of SBM. This includes a certain degree of political will to plan and implement school policies, programs, and projects. A high degree of sensitivity towards the needs of the workforce, excellent social attributes, efficient management of resources, and credibility should also be considered. Hence, the idea of quality management system is anchored on the principle that it is better to lead from behind and to put the people in front, especially when one celebrates victory and when nice things occur. Thus, a clear and well-defined direction has formed-part in meeting with standards as per quality management principle.

This study unveiled significant findings that compliance with the SBM standard principles will bring every learner beyond the thrust of basic education. Through the continuous improvement of their learning outcomes in a much wider horizon, there will be more totally empowered individuals who are culturally-mature, productive, self-reliant, and globally competitive members of the society. Such realization beyond the basic education of every learner can be achieved when full compliance with the SBM standard principles is attained through quality management system as a result of every educational leader's commitment and dedication to make these things happen meaningfully in the lives of the learners.

This implies that raising the bar, to reach the advance status as per SBM standards through an administrative policy that must be implemented among school leaders to continuously innovate, and provide a real-world learning experiences to students. In the study of Serdyukov (2017), innovation can be presented as a model in the context of its effects on the quality of teaching and learning within an educational environment, which is permeated by professional and societal cultures. Even when an innovation comes to life, it is of little worth without implementation (Csikszentmihalyi, 2013). Supporting the innovations in the Philippine Basic Educational system, will continuously and effectively evolve and progress, otherwise, education will stagnate and produce mediocre outcomes.

Conclusions

The level of compliance with SBM standard principles of the two central schools as assessed by the internal and external assessors is at maturing level of compliance or Level 2. Because of the 76.7% compliance status, the schools have a strong capability to a very nearly compliance with the Level 3 standards. Among the four principles, leadership and governance need to be given attention for continuous improvement as evident in the findings as the least among the SBM principles. Further, it is concluded that the no significant difference in the level of compliance of the two central schools with the SBM signifies that both schools possess the same characteristics as far as SBM principles is concerned.

Recommendations

In as much that the ultimate goal of the two central schools from the context of SBM compliance is to improve the learners' learning outcomes and attain the Level 3 of the SBM accreditation, the following recommendations are deemed significant: a) every teacher designated as SBM coordinator may be deloaded of his/her teaching assignments so that every SBM and other related activities can be properly



and fully attended, monitored and evaluated; b) Quality management system review may be conducted at least once a year, by the Division SBM Coordinator; c) all learning materials should be quality assured prior to the school opening by the LRMDS (Learning Resources Management and Development System) Section; d) every school will have a separate Records and Documentation Office that will serve as repository of vital school's records and documents to be managed by the school's SBM Coordinator; e) every Principal will present their innovations on SBM practices to the Division Office for replication and institutionalization; f) teachers will facilitate the quality teaching and learning activities of the students in the development of the mandated competencies; and, g) Conduct a parallel study to noncentral schools.

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Life Skills of Maritime Students in the Philippines: Responding to the Realities of Seafaring

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ABSTRACT

This study aimed to determine the level of life skills of maritime students in the four include interpersonal communication/human relations, dimensions that problemsolving/decision making, physical fitness/health maintenance, identity and development/purpose in life when taken as a whole and when grouped according to academic classifications, indulgence in smoking, and indulgence in drinking liquor. Also to find out if a significant difference exists in the level of life skills of maritime students in the four dimensions when grouped according to the aforementioned variables, and to determine which among the four dimensions can best predict the life skills of maritime students. A descriptive design using the survey method was used, with a sample size of 1772 respondents from selected Maritime Colleges in the Philippines. A quantitative analysis of the data using the mean, t-test, and multiple regression analysis revealed a high level of life skills among the maritime students. Findings revealed that interpersonal communication/human relations had obtained the highest mean. Significant differences were noted in the following aspects: problem-solving/decisionmaking dimensions between scholars and non-scholars; the life skills of students who smoke and do not smoke in all the four dimensions and those who are drinker and non-drinker of liquor. The results of the Multiple Regression Analysis indicated that 91% of the variation in life skills can be attributed to interpersonal communication/human relations, making it the best predictor of life skills.

Keywords: Life Skills, Maritime Students, Life Skills Model, Sea Service, Human Factors





Introduction

Future seafarers need to be equipped with a reservoir of skills that can help them sustain themselves through life. Skills that can make them effectively manage the challenges and tough times of everyday shipboard life, not just on the personal and academic level but in their preparation for their career life ahead. Life skills are individual thoughts and actions used to deal with threatening and stressful situation (Brooks, 1984). These life skills also referred to as coping skills that are essential as they prepare to take their place in the industry as responsible officers. According to (Mofrad, 2013; Packer, 2006), today's generation of future officers needs to develop optimum skills to easily adapt to the realities of seafaring.

Merchant seafaring is a unique occupation that has traditionally been associated with high risks of fatal accidents (Tomaszunas & Weclawik, 1997). Currently, the maritime industry is beset with perennial issues related to crewing. These issues include stress and fatigue, shortage of workforce, heavy workloads, increased demand in standards of training, homesickness anxieties, threats on safety and security, incidents of depression leading to suicidal behavior, work discrimination, and interpersonal conflicts on board.

For the maritime industry to sustain itself in the years to come, needs to have a stable fallback in terms of human resource by ensuring a steady supply of quality workforce. The industry needs to breed marine officers who do not only possess the technical competence and skills, but also the life skills to enable them to cope and survive. Such expectations require more professional adequacy, not mentioning substantial preparation in a holistic sense. Yadav and Iqbal (2009) point out that equally important as with the acquisition of cognitive skills is the development of social and emotional coping skills or life skills that help promote the development of well-being and competence in young people as they face the challenges and realities of life. Unfortunately, as observed by Burns, Ruby, DeBowes, Seaman, and Brannan (2006) with all the advances in technology and human expectations, the development of non-technical skills or "people skills" such as interpersonal and social skills, communication skills, leadership and teamwork, self-management and other life skills have failed to keep pace and are deemed insufficient.

Despite the many studies on life skills among adolescents that promotes positive behavior (Nasheeda, Abdullah, Krauss, & Ahmed, 2018), no study was conducted relative to the life skills (four dimensions) among maritime students and which among these dimensions can best predict life skills of maritime cadets that will prepare them to be responsive to seafaring life. For this reason, the researchers as connected in maritime institutions opted to engage in this study to describe the life skills of the maritime cadets which is vital in seafaring life. Results of this study provides a baseline data for the training model for life-skills enhancement.

Research Objectives

The study aimed to determine the level of life skills of maritime students in selected Maritime Higher Educational Institutions in the Philippines and to find out if such skills are influenced by selected variables. Specifically, it answers the following questions: 1) What is the level of life skills of maritime students in the four dimensions such as interpersonal communication/human relations, problem-solving/decision making, physical fitness/health maintenance, and identity development/purpose in life when taken as a whole and when grouped according to: academic classifications (scholar and non-scholar); indulgence in smoking (smoker and non-smoker); indulgence in drinking liquor (drinker and non-drinker). 2) Is there a significant difference in the level of life skills of maritime students in the four dimensions when grouped according to the aforementioned variables? 3) Which of the four dimensions can best predict the life skills of maritime students?



Framework of the Study

World Health Organization (1997), reiterated that individuals with adequate life skills adapt and have positive behaviors in dealing with the challenges and demands of everyday life. Skilled young adults are able to form relationships with their social contexts necessary in widening their social spectrum and intimacy (Packer, 2006). Furthermore, WHO (2009), singled-out low academic achievement, poor social competence, poverty, truancy, and impulsiveness as risk factors for violence among individuals by developing life skills, their social and emotional skills can help young adults manage their life better. (Mofrad, 2013).

Life skills also called coping skills or strategies, is defined as the individuals' thoughts and actions used to deal with threatening or stressful situations. According to Flannery (2016), it can be positive or negative. Expectedly, future maritime officers are supposed to develop positive life skills or coping skills to survive in their profession.

The concept of this study is anchored on Brooks (1984) Taxonomy of Developmental Life Skills, which was classified generically by Picklesimer and Miller (1998) into four main categories: (1) interpersonal communication/human relations, (2) problem-solving/decision-making, (3) physical fitness/health maintenance, and (4) identity development/purpose in life. *Interpersonal communication/human relation skills* comprise the development of certain psychosocial behaviors such as empathy, confrontation, warmth, genuineness, management of interpersonal intimacy and clarity of expression (Brooks, 1984).

The second category, *problem-solving/decision-making*, according to Fischhoff (2013), is the life skill that involves problem identification, goal setting, information seeking, time management and conflict resolution. It is a task of illustrating decision, consequently to provide an answer to any problematic situation that causes perplexity.

Furthermore, the third category as identified by Picklesimer and Miller (1998) is *physical fitness/health maintenance*. One of the developmental tasks of adolescents is developing healthy habits and skills to cope with stress (Hurlock, 1982). According to Brooks (1984), the life of young adults comprises the maintenance of proper nutrition, stress management, coordination, selection of leisure activity inclusive of physiological health and sexuality.

Identity development/purpose in life is the fourth skill, comprising of self-esteem, moral choices, selfmonitoring, sex role development and emotional expression. The development of "Persona" according to Jung (2014), a Swiss Psychiatrist, is the social face the individual presents to the world---a kind of mask designed to make a definite impression upon others and to conceal the true nature of the individual. The development of a variable "social persona" is a vital part of adapting to and preparing for adult life in the external social world. A strong ego is related to the outside world through a flexible persona.

From the perspective of Maritime Education and Training (MET), the development of life-skills is emphasized in Table A-VI/1-4 of Standards of Training, Certification and Watchkeeping for Seafarers (STCW 2010) (International Maritime Organization, 2011), stipulates the need of life skills which articulates a good human and working relationship onboardship. This is vital among the seafarers to be competent and establish an effective human relationship. Such mandate promotes the need for seafarers to undergo training and certification to equip them with the ability to maintain good human and working relationship, work in the spirit of teamwork, and deal with conflicts that they could experience on board ship. Furthermore, Maritime Labor Convention promotes healthy lifestyle and wellness among the seafarers (Lavelle, 2013).

The present study is also anchored with Social Learning Theory (Bandura, 1977), that people learn new behavior, values and attitudes by observing others from his environment.



Methodology

The descriptive-comparative research design was employed to compare variables and indicate if significant difference exists. This study involved a total sample of 1772 maritime students from all year levels enrolled in the Bachelor of Science in Marine Transportation (BSMT) and Bachelor of Science in Marine Engineering (BSMarE) programs the school year 2017-2018 in maritime schools accredited by the Commission on Higher Education and the Maritime Industry Authority (Marina) in the Philippines.

The research instrument used to find out the level of life skills of students was a modified Life Skills Inventory adopted from (Billie K. Picklesimer & Gazda, 1996). Validity test was established through Content Validity Ratio (CVR) with the content validity index of 0.937. The CVR was conducted by experts in the field of discipline. Reliability was obtained using Cronbach's alpha which yielded an alpha coefficient of 0.88. The life skills of these students was determined based on a four-point Likert Scale and interpreted as Very High (3.51-4.0), High (2.51-3.50), Low (1.51-2.50), and Very Low (1.0-1.50).

The four dimensions of life skills was used as research instrument because the indicators of the four (4) dimensions are classified as generic life skills (Billie Kiser Picklesimer, 1991) and are considered as Taxonomy of Developmental Life Skills formulated by Brooks (1984). Moreover, the indicators in the four dimensions of life skills are in consonance with the mandated soft-skills by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 2010 amendments, thus the researchers find it appropriate as the research instrument in the context of this study.

A quantitative analysis of the data using the mean to determine the level of life skills, t-test for independent mean to determine the significant difference, and multiple regression analysis to indicate the best predictor of life skills.

Results

On the Students' Level of Life Skills

Dimensions	Mean	Interpretation
Interpersonal Communication/Human Relations	3.11	High
Problem-Solving/Decision Making	3.07	High
Physical Fitness/Health Maintenance	3.04	High
Identity Development/Purpose In Life	2.99	High
As a whole	3.05	High

Table 1: Level of Life Skills of Maritime Students When Taken as a Whole

Table 1 shows that the interpersonal communication/human relations has the highest mean of 3.11 which is High when taken as a whole. This indicates that students can maintain a positive social relationship most of the time. This implies that students possess the life skills that can make them effectively manage the challenges and tough situations in everyday shipboard life.

Table 2: Level of Life Skills of Maritime Students According to Academic Classification

	A	cademic Cl	т	otol				
	Scl	Scholar		Scholar		cholar	Total	
Dimensions	Mean	Interpre tation	Mean	Interpr etation	Mean	Interpreta tion		



Interpersonal Communication/ Human Relations	3.05	High	3.11	High	3.11	High
Problem-Solving/Decision Making	3.00	High	3.08	High	3.07	High
Physical Fitness/Health Maintenance	3.01	High	3.05	High	3.04	High
Identity Development/ Purpose In Life	3.04	High	3.08	High	3.07	High
As a whole	3.02	High	3.08	High	3.07	High

Table 2 shows that academic classification such as scholars obtaining the mean of 3.05, high level and for non-scholars having the mean of 3.11. High level, in the interpersonal communication / human relations. This was identified as the highest among the four dimensions. It can be noticed that physical fitness/health maintenance indicated 3.01 to 3.05 for scholars and non-scholars respectively. Apparently, both scholars and non-scholars possess the life skills on managing their interpersonal intimacy which enables them to maintain a positive social relationship.

Table 3: Level of Life Skills of Maritime Students According to Indulgence in Smoking

		Indulgence in	Total			
	S	Smoker	Non-S	Smoker	10181	
Dimensions	Mean	Interpretation	Mean	Interpr etation	Mean	Interpret ation
Interpersonal Communication/ Human Relations	3.06	High	3.13	High	3.11	High
Problem-Solving/Decision Making	3.03	High	3.09	High	3.07	High
Physical Fitness/Health Maintenance	2.98	High	3.08	High	3.04	High
Identity Development/ Purpose In Life	3.03	High	3.10	High	3.07	High
As a whole	3.03	High	3.10	High	3.07	High

Presented in Table 3, is the mean of 3.06, described as high for the smoker and 3.13 indicated as high for non-smoker, in the dimension of interpersonal communication / human relations, while 2.98 for smoker and 3.08 non-smoker in the dimension of physical fitness/ health maintenance. This implies that smoker are more vulnerable to health challenges, more specifically in maintaining good health habits due to physiological influence of cigarette smoking like respiratory, circulatory and other related illnesses (WHO, 2017).

Table 4: Level of Life Skills of Maritime Students According to Indulgence in Liquor

	In	dulgence in l	Liquor	,	Total	
Dimensions	Drinker		Non-Drinker			
Dimensions	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Interpersonal Communication/Human Relations	3.10	High	3.11	High	3.10	High
Problem-Solving/Decision Making	3.05	High	3.09	High	3.07	High
Physical Fitness/Health Maintenance	3.00	High	3.02	High	3.01	High
Identity Development/ Purpose In Life	2.74	High	2.84	High	2.79	High
As a whole	2.97	High	3.01	High	2.99	High

Table 4, shows when respondents were grouped according to indulgence in drinking liquor, the result shows that the life skills of maritime students for drinker is 3.10 identified as high in the dimension of interpersonal communication / human relations and for non-drinker is 3.11, high level in the same dimension. While, the numerical data for the dimension of identity development / purpose in life has the mean of 2.74 for drinker and 2.84 for non-drinker, both mean are described as high level, but numerically it's the lowest mean among the four dimensions.



On the Difference in the Students' Life Skills in the Four Dimensions When Grouped according to the Given Variables

Interpersonal Communication/ Human Relations	n	Mean	df	t	р
Scholar	258	3.05	1770	1.00	0.07
Non-Scholar	1514	3.11	1770	-1.80	0.07
Problem-Solving/Decision Making	n	Mean	df	t	р
Scholar	258	3.00	1770	2.52	0.01*
Non-Scholar	1514	3.08	1770	-2.33	0.01
Physical Fitness/Health Maintenance	n	Mean	df	t	р
Scholar	258	3.01	1770	1.02	0.22
Non-Scholar	1514	3.05	1770	-1.25	0.22
Identity Development/Purpose in Life	n	Mean	df	t	р
Scholar	258	3.04	1770	1.20	0.20
Non-Scholar	1514	3.08	1770	-1.29	0.20
As a whole	n	Mean	df	t	р
Scholar	258	3.02	1770	1.01	0.07
Non-Scholar	1514	3.08	1770	-1.81	0.07

Table 5: Significant Difference on Students' Life Skills Based on Academic Qualification

*p<0.05, significant @ 0.05 alpha level of significance

Table 5 are the data showing the significant difference in the students' life skills in the four dimensions based on academic qualifications, only the dimension of problem-solving / decision making, shows a significant difference between scholars and non-scholars, while the other three dimensions show no significant difference. Problem-solving and decision making skills is anchored in the framework of Heuristics wherein satisfactory decisions are made quickly with ease (Shah & Oppenheimer, 2008) approach to problem solving or self-discovery that employs a practical method, not guaranteed to be optimal, perfect, logical or rational, but instead sufficient for reaching an immediate goal (Deri, Davidai, & Gilovich, 2017). This implies that both groups of students possess the skills on problem solving and decision-making in various and dynamic ways, considering their past experiences, cognitive biases and belief in personal relevance. When people believe, what they decide matters most, they are likely to make decision (Acevedo & Krueger, 2004).

Table 6: Significant Difference on Students' Life Skills Based on Indulgence in Smoking

Interpersonal Communication/ Human	Ang	Mean	df	t	р
Relations					
Smoker	653	3.06	1770	-2.85	0.00*
Non-Smoker	1119	3.13			
Problem-Solving/Decision Making	n	Mean	df	t	р
Smoker	653	3.03	1770	-2.333	0.02*
Non-Smoker	1119	3.09			
Physical Fitness/Health Maintenance	n	Mean	df	t	р
Smoker	653	2.98	1770	-3.85	0.00*
Non-Smoker	1119	3.08			
Identity Development/Purpose in Life	n	Mean	df	t	р
Smoker	653	3.03	1770	-2.62	0.01*
Non-Smoker	1119	3.10			
As a whole	n	Mean	df	t	р
Smoker	653	3.03	1770	-3.07	0.00*
Non-Smoker	1119	3.10			

*p<0.05, significant @ 0.05 alpha level of significance



Table 6 indicates that there is significant difference in all dimensions of life skills when students are grouped according to indulgence in smoking. This can be attributed to smoking behavior of a person , wherein it interplay between personality and environment influences. The significant difference perceived by the respondents is attributed to the many facts about the physical and physiological effects of smoking which consequently would affect behavioral and cognitive abilities. Apparently, nicotine addiction is an extremely complex process that involves biological, psychological, behavioral and cultural factors. Research has shown that nicotine increases the level of dopamine in the brain, a neurotransmitter that is responsible for the feeling of pleasure and well-being (Terry, 2019). This implies that a person will smoke again and again (dependent), in order for him to activate his sense of pleasure. Indulgence in smoking is seen as a way to increase concentration, although this is a myth since the level of concentration declines with every smoke due to the increased carbon monoxide content in the blood which consequently reduces the oxygen supply in the vital organs including the brain (WHO, 2017).

Interpersonal Communication/ Human Relations	n	Mean	df	t	р
Drinker	600	3.10	1770	0.16	0.02*
Non-Drinker	1172	3.10	1770	0.10	0.05*
Problem-Solving/Decision Making	n	Mean	df	t	р
Drinker	600	3.05	1770	1.02	0.04*
Non-Drinker	1172	3.09	1770	1.05	0.04**
Physical Fitness/Health Maintenance	n	Mean	df	t	р
Drinker	600	3.00	1770	0.67	0.01*
Non-Drinker	1172	3.02	1770	0.07	0.01**
Identity Development/Purpose in Life	n	Mean	df	t	р
Drinker	600	2.74	1770	2.61	0.01*
Non-Drinker	1172	2.84	1//0	-2.01	0.01*
As a whole	n	Mean	df	t	р
Drinker	600	2.97	1770	0.47	0.01*
Non-Drinker	1172	3.01	1110	0.47	0.01**

Table 7: Significant Difference in Students' Life Skills Based on Indulgence in Liquor

*p<0.05, significant @ 0.05 alpha level of significance

Table 7 shows that there is a significant difference in the level of life skills of drinker and non-drinker. Reflecting on the four dimensions of life skills that focused on the health and psychosocial dynamics of human person, indulgence in liquor affects not only physical, but also normal personality traits can disappear during intoxication of liquor (Johnson, 2009). Apparently, the students possess a high selfesteem, able to make moral choices and express himself and his individuality to other people. However, as reiterated by (Paradise, 2001), self-esteem is more fragile for liquor use. This means that there is a tendency to be influenced by internally generated factors like psycho-active influence of liquor, thus, causes one to experience instability or fluctuation to identity development or purpose in life, to mention a few loss of motor coordination, alter good judgement, loss of focus and the likes. This implies that life skills of these maritime students who will be future seafarers, is distinct from each other as far as the various variables are concerned. They manifest these dimensions of life skills at a certain level and at a certain condition.

Best Predictor of Students' Life Skills



Dimensions	Coefficient of determination	df	F	р
Interpersonal Communication/Human Relations	91%			
Problem-Solving/Decision Making	6%	17/7	5 20	0.00*
Physical Fitness/Health Maintenance	2%	1/0/	5.50	0.00*
Identity Development/ Purpose In Life	1%			

Table 8: Multiple Regression Analysis for Best Predictor of Students' Life Skills

*p<0.05, significant @ 0.05 alpha level of significance

Table 8 indicating the best predictor of life skills among the four dimensions, the value of R which is .91 or 91% of the variations of life skills can be attributed to interpersonal communication / human relations. This means that the ability to relate with everyone in his immediate environment, as in the case of the real-life situation of seafaring on-board ship is apparently manifested among the maritime students. Moreover, life skills can be best developed and established when maritime students can maintain a positive social relationship at all times and in all situations. Apparently, when the interpersonal communication and human relation skills is well-developed, all the other dimensions will follow through.

Discussion and Conclusion

Life skills help in developing positive and flexible attitude for life among the maritime students. Enhancing life skills enables a person to adapt to various situations in a positive way. All people have inherent life skills, but to get the best out of them, we need training and be molded into a desirable one, and to be responsible enough to seafaring life. Life skills enable individuals to translate knowledge (what one knows), attitudes and values (what one believes and feels) into actual abilities and action (what to do and how to do it) (Kwauk & Braga, 2017). As postulated by social learning theory of Albert Bandura, life skills can be learned from own experiences, insight perception, parents, stories, book, teachers, religion, media and culture, and the likes. Changes in society and environment surrounding of young adolescents have created various problems which influences the dynamics of their interpersonal relationship and may cause worries, anxiety and stress (Yadav & Iqbal, 2009). Under these circumstances, valued skills to survive in healthy and stable conditions are life skills; with which can positively solve various everyday problems and requirements. These adolescents trained as future seafarers develop some life skills, then positive feelings and consequently developed self-worth. They will be more likely, to develop and practice new life skills as they grow more mature and acquire higher level of competencies and more serious responsibilities in seafaring. In conclusion, life skills education is desirable for promoting positive social and mental health of adolescents which plays an important role in strengthening coping strategies and developing self-confidence and emotional intelligence, as well as enhancing critical thinking, problem solving and decision making skills. Utilization of this research findings, through engaging maritime students into a life skills enhancement training, is helpful to address the needs of students, helps in motivating, providing practical, cognitive, emotional, social and self-management skills and be ready enough to encounter the real-world of seafaring.

Recommendations

The development of life skills among future seafarers is a critical factor that could determine their responsiveness to seafaring life. Hence, it is important that this should be prioritized as part of their training preparations. The following recommendations are as follows: Strengthening of the screening process, e.g. conduct of the following tests: motivation check, personality test, aptitude test, AQ, EQ, and RQ aside from entrance test. Enhancement of the curriculum and pedagogical approaches and strategies to develop problem-solving and decision-making skills in all subjects. Collective involvement of parents, faculty and the community in various extra-curricular activities to provide support to students in the development of their life skills. Provide students more challenging activities in the classroom to develop teamwork and enhance the interpersonal and human relationship of students.



Strengthening of health programs of the school by integrating in the entrance requirement of the physical exam, strict implementation of the health and wellness program that provides intensive activities for improving health lifestyles of youth, young adults, and adults. All of these is through a developmental process in the curricular training as instilled in the mental, physical, psychosocial wellness of students, developing their life skills and making them more ready and respond to seafaring life.

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University Governance and management of Vietnam: Reality and Solutions^(*)

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Introduction

In Vietnam, according to statistics of the Ministry of Education and Training (MOET), by the end of the 2017-2018 school year, there are a total of 236 universities and institutes (including 171 public, 60 private and people-founded ones, 5 with 100% foreign capital), 37 scientific research institutes responsible for training PhD candidates, 33 colleges of education and 2 high schools of education.

We all know that, Management of higher education in Vietnam under the new model of public management is developing widely, however there is still a big gap between "actual autonomy and theoretical autonomy", accountability mechanisms have not been formed, private education is facing many challenges. To overcome this situation, in recent years many mechanisms and policies have been adopted such as Resolution No. 40, Resolution No. 29, the Law on Higher Education, policies on public investment in the form of public-private partnership (PPP), the Vietnamese Qualifications Framework, etc. This shows the movement of the higher education management model in Vietnam from a model of command and control into a model of empowerment and monitoring.

To understand how to have good governance and management of universities in Vietnam, we will explore the following questions: What are the principles of good governance implemented at the university? How the principles are implemented by the administrators? What are the current situations for maintaining the good governance at the university?, and How the administrators manage the problems and obstacles of the current situation?

The study's results of interviews with 130 senior leaders of 19 public universities show that autonommy in organizational structure and personnel; financial autonomy; autonomy in training and scientific research are the most important.

Education institutes which want to meet the needs for human resources of high quality and diversified background need to strongly reform their training activities, scientific research and governance in order to create a motivated labor force who can work in a creative and competitive environment. Autonomy, accountability, development and operation of a quality management system will be essential elements in the production of the quality of the entire education process at universities in a sustainable and stable manner.

Content

"Good governance" is a concept associated to higher education. Good governance should be seen as an aid to effectiveness. It is not there to inhibit enterprise (including universities) or innovation (Hénard, F., Mitterle, A., 2010). 'Good governance" in higher education could be seen as a method of reaching agreement on valid objectives and orientations of higher education (fitness of purpose) and of developing strategies and instruments to implement them in practice (fitness for purpose) (Kohler & Huber, 2006).

To understand how to have good governance and management of universities, we will explore the following questions:

What are the principles of good governance implemented at the university?

Autonomy

"Autonomy" of universities is a concept associated to higher education.

Autonomy is an indispensable requirement for the roles and activities of a university. On one hand it assures that the university is free to make its own decisions, on the other hand it promotes the university's responsibilities to the society, i.e. directly-involved parties such as the State, investors, students and their families as well as taxpayers who contribute funding to the state budget or those who create an operating environment for the university.



Accountability

"Accountability" is the responsibility for publicizing the university's activities to stakeholders: the State, donors, students and their families, lecturers and other university staff, users of the university's products and services, and other related communities. First of all, the university must clearly show the objectives of its operation, form of ownership and operation mechanism, quality of products and services, fairness in access to opportunities and students' rights.

Autonomy and accountability are two aspects in university governance and higher education management.

Quality management

Higher education quality management is the development and operation of a standard-based governance system that impacts all aspects of a higher education institute in all stages of the training process to make sure that there are no errors in those stages, in order to form the quality of all products of the training process.

How the principles are implemented by the administrators?

Autonomy in universities

Autonomy of universities plays an important role in the attempt to define international standards of university governance (as studied by Ashbly and Anderson, 1966; Slaughter and Leslie, 1997; James, Paul & Marginson, Simon & Considine, Mark. (2002); Snyder, 2002; Henkel, 2005; Okike, E. N, 2007)). This view can be understood as a set of basic working conditions needed to protect the academic autonomy of universities.

Main areas of autonomy of universities include: organization/apparatus, financing, human resource, enrollment of students, training and academic autonomy.

Accountability in universities

"Accountability" is the responsibility for publicizing the university's activities to stakeholders: the State, donors, students and their families, lecturers and other university staff, users of the university's products and services, and other related communities in the following domains:

- Implementation of national objectives and policies
- Maintenance of academic quality (training, research and community service).
- Finance and facilities.
- Good governanec and management.

Accountability is also reflected in the engagement of external stakeholders in the University Council.

Quality management in universities

Quality management is a new management approach that has been successful in the management of production, business and services, and starts to be used in education management. Levels of quality management include: quality control which aims to eliminate sub-standard products; quality assurance which aims to prevent errors at all stages, ensuring that all products meet the standards.

It can be said that quality management is a new way of management, different from traditional management. The most important tool of this approach is a quality management system, including subsystems, which manages every activity in the university and serves every individual (based on standards, criteria, indicators).

What are the current situations for maintaining the good governance at the university?

(problem, obstacle, strength, and weakness)

Current situation of autonomy in universities in Vietnam

The Law on Higher Education 2012 of Vietnam states: "Higher education institutes are autonomous in organization and personnel, finance and property, training, science and technology, international cooperation, assurance of higher education quality". In academic aspects, a university has the autonomy to develop, appraise and issue its curricula for diploma, undergraduate and postgraduate education programs; determine student enrollment targets, print and grant all types of diplomas and degrees under its education programs.

Details of some of areas of autonomy of universities - e.g. organizational and apparatus management, financial management, human resource management, enrollment of students, training (i.e. curricula, academic assessment and grant of diplomas/degrees) - are presented in Annex 1 (attached).

Among universities operating in the territory of Vietnam, foreign-invested one have the most autonomy, followed by the two national universities. The Law on Higher Education devotes an article on these two universities: "National Universities have the right to take the initiative in training, scientific research, finance, international relations and organizational structure." Among the remaining universities, high-ranking ones are entitled to "specific management mechanisms", which means greater autonomy. Private universities, like private enterprises in the economic field, have much autonomy but the conditions for implementing such autonomy are more limited due to the lack of access to the State's resources.

Autonomy in organizational structure and human resource management is seen as a key in the autonomy process of universities. Results of interviews with 130 senior leaders of 19 public universities show that 40 of them (30.8%) think that autonomy in organizational structure and personnel is the most important; 39.2% think that financial autonomy is the most important and 29.2% think that autonomy in training and scientific research is the most important. It can be said that autonomy in organizational structure is the basis for universities to restructure the apparatus, improve the quality of personnel (especially of teaching staff) in relation to strategic objectives; at the same time it helps universities better adapt themselves to changes of the environment and creates a stronger foundation for development in the future.

The Law on Higher Education requires the establishment of a University Council in public universities. Membership of such a Council includes representatives of the Party, Board of Directors, lecturers, educational administrators, organizations and individuals involved in the construction and development of the university, relevant business and production establishments. The Council at public universites has great authority, but is not entitled to elect and dismiss the rector; thus in principle, the rector is not responsible to the Council but only to the superiors instead, like the leader of an organization in the administrative system rather than the leader of a self-governed organization. Another problem is that the relationship among the Party Committee, Board of Directors and the University Council is unclear and overlapped.

To date, 19 pilot universities have been given high autonomy. Right after the decision on assignment of autonomy was issued, universities have actively reviewed and reorganized their apparatus and personnel, especially carried out procedures to establish the University Council. Up to now, 14 out of 19 universities (73.7%) have a University Council, of which 7 have set up their Council after the issuance of the decision on assingment of autonomy. The percentage of autonomous universities with a University Council is nearly double that in the general university system (36.2%). This is due to the awareness of autonomous universities of the roles of the University Council in implementing university autonomy. Despite many efforts in organizational work, 5 out of 19 university still do not have a Council.

Current situation of accountability in universities

Universities specialized in technical training, law, education, health sciences, accounting and audit are subject to stricter control of the State relating to conditions for practice (i.e. applicabble to practitioners) thus they have to fullfill certain requirements for their specialized training programs and meet a number of specific standards set by the State.



Universities subsidized by the State budget are required to report on the use of the State budget. In addition, most universities, whether public or private, must develop their own internal audit procedures to ensure the efficient and effective use of resources, and their annual financial statements must be approved by the state audit office or independent auditors.

Many universities appear to be reluctant and formalistic in publicizing information on financial activities, training and employment; at the same time they do not take responsibilities for poor training conditions, poor training quality, low ability of accessing employment and intergrating into the labor market of their students.

Stakeholders inside and outside the university are not actually involved in making important decisions of universities. Universities do not have various measures to disseminate and receive ideas/information to/from lower and higher levels and to/from stakeholders.

Current situation of quality management in universities

With the efforts of managers and education scientists, Vietnam has developed and issued many standards in line with the general trend of education in the integration process. Vietnam is undertaking a radical reform of its education system, so standardization of educational institutes as well as educational titles is very important and necessary.

The set of standards for evaluating the quality of educational institutes has been issued by the MOET under Circular No. 12/2017/TT-BGDDT including 25 standards, 114 criteria and covering the following areas: strategic quality assurance (8 standards, 36 criteria), system quality assurance (4 standards, 18 criteria), function quality assurance (9 criteria, 44 criteria)), performance (4 standards, 16 criteria).

Universities' tasks are to develop and operate a governance system to make these areas meet the standards and criteria in order to meet the demands for high-quality human resources, integration and competition.

With regard to the use of standards and criteria, the first and most important part of a standard-based governance process is to develop a governance system that impacts all quality assurance conditions so that they can meet the requirements of every criterion in the set of standards.

However, the implementation of quality management is still facing the following obstacles:

- The development and review of management and administrative documents are slow and cumbersome, not in line with the performance and outputs of universities, not linked to quality assurance and quality culture.

- Sectoral development strategies are not in accordance with the mission, objectives and development orientation of universities. Many training programs do not have clear training philosophy, are not interdisciplinary enough, do not take the advantage of combined training models (e.g. dual training) and do not have good output-based design and update of the training curricula.

- The capacity of a number of managers and leaders is limited - especially governance, management, planning, internal problem solving skills, etc. - and needs to be improved.

- The management of science/technologies and transfer of knowledge is not effective, for example the relationship between universities and enterprises/localities is limited, there are not many strong research teams, especially those with foreign scientists.

- Financial and facility administration is limited. Many universities do not have a facility development master plan suitable for each stage of their development; investment in teaching/learning materials is not commensurate with the teaching and learning needs; there are no revenue development strategies, etc.

How the administrators manage the problems and obstacles of the current situation?

Assignment of high autonomy to universities

This means universities can determine activities to improve its quality without asking for permission from management agencies providing that they are in line with law. Specifically:

a) Determination of the contents of universities' autonomy:

Determining the mission, vision, goals, core values, slogans of action, development and training models/philosophy in accordance with and in promotion of the strengths and uniqueness of the university.

Enhancing academic freedom in research, publication and social criticism. Each lecturer has the right to develop his/her own professional concepts and to be responsible for his/her expertise as long as it meets the needs of student and of the labor market.

Releasing curricula and student enrollment targets to meet the needs of the society, the labor market and in line with quality assurance conditions.

Determining the organizational structure and personnel.

Deciding the mobilization and use of funding, cooperation with local and foreign partners.

b) Autonomy in policies and regulations on linkage to the society

Having long-term, medium-term and short-term strategies and plans to cooperate with related parties

Having a regulation that representatives of product/service users shall be involved in all stages of the process of training, scientific activities, community service and start-up support.

c) Having an appropriate system for organization of training, research and knowledge transfer

Completing the unit/focal point responsible for taking care of the cooperation with stakeholders to achieve the set objectives.

Strengthening research centers/institutes, transferring knowledge based on outputs and sectoral/intersectoral commitments.

d)Clarification of the relationship between the Board of Directors and the University Council

Issuing specific regulations on the University Council soon, which clarify the relationship between the rector and the Council in order to clearly define their powers, functions and tasks and avoid overlapping and unclear issues.

The relationship between the University Council and the rector is a leadership one. These two entities make decisions on strategic plans, monitoring and organization of the implementation of such plans, and are under supervision (with no overlapping). Universities should proactively specify this relationship in the organizational and operational regulations of the university and of the University Council.

Specific recommendations:

a) Functions/powers of the University Council: it mainly performs governance

Select and propose the rector to be appointed and monitor his/her performance.

Propose the mission, vision and development objectives to the Party Committee for decision

Approve strategies, (long-term) strategic plans, resources, performance indicators, core values, slogans of action, development models and philosophy, education philosophy.

Monitor the performance against the approved strategies and plans.

Establish a risk inspection, monitoring and management systems.

b) Functions/powers of the Board of Directors:

Select and propose the rector to be appointed and monitor his/her performance.

Develop and submit the mission, vision and development objectives to the University Council.



Develop and submit strategies, (long-term) strategic plans, resources, performance indicators, core values, slogans of action, development models and philosophy, education philosophy to the University Council for approval.

Organize the implementation of resolutions and conclusions by the Party Committee and the University Council.

Establish a risk inspection, monitoring and management systems.

Strengthening of the accountability of universities

a) Development of appropriate accountability methods

National goals: The MOET assesses the implementation of performance indicators

Teaching quality: external quality review and internal quality assurance

Finance: financial audit

Good governance: reports and statistics

b) Switch to research, training and transfer of knowledge in accordance with the development needs of the society and of the country's course of development

Switch to research and settlement of problems arising from the needs and short-term/long-term demands of the development of the country and the society;

Switch to the assessment of real values and real products for development and management of research, training, transfer of knowledge, propaganda and visibility;

Switch from single sectors to inter-sectors or cross-sectors given that the development of single sectors is still maintained

Having ways to disseminate and receive ideas/information to/from upper and lower levels as well as stakeholders.

c) Promotion of the internal strengths of university staff

Managers and leaders should take the lead in innovation, change their awareness, commit the implementation through development and implementation of effectiveness improvement policies.

University staff, lecturers and students should fulfill their professional aspiration, contribute and implement solutions to link the university and the society in a creative manner.

Stakeholders should implement solutions to connect the university to the society in accordance with their interests.

Development of an advanced quality management system

a) Strategic management and output-based management

The rights and responsibilities of internal stakeholders are clearly defined and accepted by parties.

Party organization, the University Council, Board of Directors and the Advisory Council cooperate and work together and respect each other.

The scientific community accepts decisions by leaders and managers for the shake of the university.

Stakeholders inside and outside the university are actually involved in making important decisions of the university.

These forms of management are reflected through the high quality and effectiveness of training, scientific research, transfer of knowledge, attraction and efficient use of resources.

b) Development and operation of a quality assurance system



Development of a system means the development of procedures for performing every task to ensure that the products created are error-free, each stage is error-free and eventually all products of the whole education process are error-free. Operation of systems is the most difficult because it changes the habits of individuals, requires them to do old work in new ways. Once a system is developed and operated, it will produce the quality of all products of an education institute.

Therefore, before the implementation, people should have chance to discuss and propose adjustments based on their existing conditions. During the implementation, they should receive support, assistance, training and even sanctions in the initial stage, so that latter on they will get used to the new system and form the culture of quality.

The development of a management system is carried out in the following steps:

Step 1: Study the set of standards (including each standard, criterion, indicator), identify evidence and requirements for the evidence.

Step 2: Develop guidelines on preparation of evidence which specify the person in charge of coordination, collaborating individuals, steps and evidence to be attached.

Step 3: Disseminate the guidelines so that all university staff and lecturers study, discuss, feedback, supplement, agree on and determine (in writing) all the activities to be done.

Step 4: Let university staff and lecturers perform their own tasks as guided and carry out the activities they have determined.

Step 5: Require performers of certain tasks to prepare a report on the process they perform the tasks - what activities have been done and proposed improvements to the system.

Step 6: Synthesize reports of units and individuals into a self-assessment report of the university and register for accreditation;

Step 7: Receive the external assessment team. Prepare answers to questions that are to be raised during internal and external assessment such as: Does the university have a quality management system? Is that system (if any) operated? If it is operated, does it produce quality of the education process? All answers need to be proved by evidence.

If the system is operated continuously, the quality of products will be sustainable. After each internal and external assessment, the system and the way it is operated will be improved.

In manage the quality, every staff of the university has his/her own duties. Each duty is guided by a process which must be followed to ensure the quality of products. Each process is a sub-system within the university's quality assurance system.

Conclusion

Education institutes which want to meet the needs for human resources of high quality and diversified background need to strongly reform their training activities, scientific research and governance in order to create a motivated labor force who can work in a creative and competitive environment.

Autonomy, accountability, development and operation of a quality management system will be essential elements in the production of the quality of the entire education process at universities in a sustainable and stable manner.

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Vietnam's Law on Higher Education 2012 and 2019.



Annex 1

DEGREE OF AUTONOMY OF UNIVERSITIES IN VIETNAM

Contents of autonomy	Vietnam's practice
Autonomy in	Public universities are governed by line ministries. The establishment
organizational	of a University Council at universities has been clearly stated in the
structure	Regulations of Universities 2003 and 2010 but in practice it does not
	work. Universities are administered by the Board of Directors
	(including the rector and vice rectors). The rector is appointed by the
	line ministry, although the appointment is usually based on the
	recommendation of a selection committee at the university.
Autonomy in financial	Universities have certain degree of autonomy following the removal
management	of expenditure norms. However, financial management regulations of
	related ministries remain in effect. The rector can determine the
	maximum expenditure rate as allowed by the MOET.
Autonomy in human	Most universities are now recruiting their own personnel and directly
resources	sign contracts with individuals. University staff are civil employees.
	However, the appointment of professors must be approved by the
	State Council for Professor Title of Vietnam. For universities under
	local (i.e. province/city) management, the recruitment of permanent
	staff must be allowed by the People's Committee (through the
	Department of Home Affairs)
Autonomy in	The MOET decides the number of students to be enrolled by each
enrollment of students	university based on the university's proposal and training capacity.
100	The enrollment is handled by the MOET for most full-time students
	through university entrance exams organized at national level and
// C	students' academic performance. The government sets the maximum
	rate of tuition fee.
Autonomy in	The curriculum framework or outline (accounting for 60-70% of the
curriculum	full curriculum) is set by the MOET while the remaining part of the
	curriculum is set by the university itself. The curriculum must comply
	with the general curriculum framework. Although faculties now have
	more autonomy in deciding on contents and teaching methods, they
	have to follow the curriculum framework. Universities need to obtain
	the MOET's approval before having a new major.
Autonomy in	Universities are primarily responsible for certifying student's
certification of	academic performance, but most of them can grant master degrees
academic performance	only. A number of key universities can grant doctoral degrees.
and grant of degrees	However, universities (except for the two national universities) have
	to buy testimonials from the MOET.



University Admissions Office Delivery of Operational Principles and Practices: Basis for Creating an Action Plan

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ABSTRACT

Managing enrolment, which is the primary mandate of an admissions office, has been an issue for educators since the establishment of post secondary institutions. Admission standards and academic programs have been evaluated for decades by institutions with the pursuit to attract a desired student population. This research attempts to identify key areas that would help in making sure that the office will be able to provide quality service to students. This study was anchored on the context, input, process, product evaluation model (CIPP) by Stufflebeam, a management-oriented approach widely used in public schools and higher education institutions in USA and across the globe. The participants of this study were the 303 first year college students enrolled in all colleges of a Filipino University during the 2nd semester of SY 2018-2019. Random sampling was utilized in this study and it used a survey questionnaire for data gathering. The study reveals that the admissions office is delivering its services based on operational principles (3.23 mean) and expected practices (3.22 mean). This encompasses achievement of its objectives, implementation of policies and performance of duties and responsibilities. This also includes marketing and communication, recruitment and admission, career services, financial aid, orientation program, and retention activities. Students differ in their opinions on services like financial aid and orientation program. Key areas are given a closer inspection and used as basis to introduce an action plan to improve admissions office processes and services.

Keywords: University Admissions, Admission Operational Principles and Practices, Enrolment Management







Introduction

There is a long-standing competition among universities to attract students and this clash starts at enrollment. Enrollment management within institutions begins with identifying the strategic purpose and mission of the institution. Enrollment management is a model that makes the harmonization of the marketing, admissions, recruitment, pricing and aid, retention programs, and academic support services. It is a program developed as a strategy to achieve an institution's vision and mission. Leaders of higher education institutions must determine if their organizational structure is working effectively to produce the necessary results to meet the needs of the entire organization (Hossler, 1990). Efforts to influence the degree and symphony of campus depend on timely and accurate information. Data are needed for monitoring the ongoing picture, as well as for investigating in detail student decision making concerning college choice and persistence (Clagett, 1995).

The context, input, process, product evaluation model (CIPP) effectively addresses service-learning standards for quality practice (Zhang et al, 2011). The goal of CIPP is "to improve" not "to prove" (Stufflebeam and Shinkfield, 2007) the issues within the organizations. Managing enrolment, the primary mandate of an admissions office, has been a constant issue for educational institutions. Admission criteria and academic programs have long been evaluated by institutions with the pursuit of enrolling a desirable student population. Along with this quest to enroll most favorable student population, higher education organizations continue to modify its offerings. Demographics of students, academic preparedness of students, and how students communicate have offered new challenges for institutions looking to recruit and enroll students. Beginning in the 1970s, and until today, most colleges have developed two basic market-oriented approaches: institutions want to forecast and be able to plan more effectively, and they want to influence the decision-making process of prospective students who are desired by the institution (Black, 2004). These objectives can be accomplished only by managers who understand the factors that influence college choice. Factors comprise student environmental issues, characteristics, and institutional attributes. The academic environment and student background must be understood in the context of satisfaction and performance (Kemerer, Baldridge, & Green, 1982).

As noted by Black (2004), institutions that utilize tactical planning models tend to focus inwardly. The models frequently utilize chronological data and anecdotal familiarity to direct the strategy development. These are important to understand, although in order to maximize strategic efforts, managers also must anticipate environmental shifts and assess the impact of these changes on objectives at their respective institutions (Cope, 1981). In the study conducted by Reyes (2009), the Philippines' HE Modernization Act of 1997 was able to put weight of influencing a state University to be an entrepreneurial University.

Whether a university is government- or privately-owned, its objective is always to be a client-focused organization that supplies services sufficient to meet its clients' needs and expectations. It invests in developing services that are readily accessible, timely, above average, effective, and of highest quality. Every higher educational institution hopes to be recognized as a leader and leading-edge user of staff development and technology to achieve excellence. It intends to excel in effective institutional resource management. This goal applies to the University's technological infrastructure, service improvement, and management systems.

This study attempts to identify key operational principles and practices that will help in making sure that an admissions office of a Filipino University will be able to provide quality service to its prospect students to help them continue the process from inquiry to admissions. In particular it looks at how students assess the admissions office's delivery of services based on its operational principles: achievement of objectives, implementation of policies; and performance of duties and responsibilities. Students also assessed the provision of admission activities to include marketing and communications, recruitment and admissions, career services, financial aid, orientation; and retention. The students' profile was examined if this caused a significant difference in their assessments.



Methods

The study utilized the descriptive method of research. It was conducted at a co-ed University in a major city in the southern part of the Philippines. The participants of the study were a sample group of 303 first year students enrolled in the second semester of school year 2018-2019. The research instrument used consisted of three parts. The first part was the demographic profile of the participants. The second part of the tool consisted of questions incorporated from the operational guidelines found in the Admissions Manual of the University, such as objectives, policies, and duties and responsibilities. Part three of the survey tool consisted of admissions office practices modified from a questionnaire used by Laura S. Doty, on her 2017 study of enrollment management structures and activities. The questionnaire was modified in order to localize the questionnaire according the objectives of the study, and it looked at various activities covering marketing and communications, recruitment and admission, career service, financial aid, orientation, and retention.

A pilot test was conducted among thirty (30) first-year students who were not among the final participants of this study. Aside from subjecting the questionnaire to a review by two officers of the University, the Cronbach's alpha test yielded an alpha above average of 0.957 for all the items in the test questionnaire, suggesting that the items have relatively high internal consistency.

For the scoring procedure, each item in the questionnaire had four possible responses. Each of the response belonged to a scale of agreement (4=Strongly agree, 3=Agree, 2=Disagree, 1=Strongly disagree) on the delivery of the operational principles and practices of the admissions office. Interpretation of range of values of the mean was based on the following: 3.26 to 4.00 = excellent; 2.51 to 3.25 = above average; 1.76 to 2.50 = average; and 1.00 to 1.75 = below average. The distribution of the questionnaire was conducted randomly and participation was with the approval of the students, who received an explanation on the matter of the study and on how to answer the questionnaire. Simple frequencies, percentages and weighted mean were used to process the assessments of the students. T-test and ANOVA were used to test significant difference.

Results

Profile of Participants

A total of 303 students participated in the study. Using stratified sampling, most participants came from the College of Maritime Education (32.4%) followed by participants from the College of Business Administration (21.5%), College of Education (14.5%), College of Criminology (10.2%), College of Nursing (9.9), College of Engineering (6.3%), College of Computer Studies (4.3%), and College of Arts and Sciences (1%).

There were 156 male student participants (51.5%) and 147 female student participants (48.5%). In a 2006 study, Sifuna found that males have more issues on the compliance of school operational principles. The study suggested that some affirmative measures may be adopted in University admissions to increase the participation of mounting bridging courses in the sciences and technology and allowing for credit transfers in University admissions for students from technology-based tertiary institutions (Sifuna, 2006). This may be considered upon a closer look at the degree programs which attract more male students. As yielded, most of the colleges have more male students particularly the College of Maritime Education and Criminology, considering the kind of jobs that these colleges offer after finishing the degree. While there are more female students for the College of Nursing and Business Administration considering also the nature of the job they will execute.

Assessment of the Admissions Office Operational Principles



Table 1 shows the summary of the student assessment on the admissions office's delivery of operational principles in terms of achievement of objectives, implementation of policies, and performance of duties and responsibilities.

Majority of the students (49.83%) think that the admissions office is performing excellently in its *achievement of its objectives*. These are objectives found and identified in the Admissions Manual. They found that *"enrollment procedure is easy to understand and to follow"* (3.37). This means that the participants were guided properly during the procedure. This is supported by Standa (2008), that when an institution is above average, it only shows guaranteed standards; and excellence of its educational requirements are being upheld and enhanced. Though still interpreted as above average, the lowest items are *"over-all procedures and requirements are clear and well-presented"* (3.23) and *"admissions office has explained well the purpose of the requirements during the enrollment"* (3.23). This result implies that further clarity in explaining the requirements to enrollees during the period of enrollment may result to an increase of students in the school. Achievement of its objectives is the top priority of every organization. With the mean of 3.28 (excellent), it is considered that the admissions office has achieved of its general and specific objectives.

Table 1: Assessment of	Student-participants of the
Admissions Office's Deli	very of Operational Principles

Item	Average Mean	Interpretation
Achievement of Objectives	3.28	Excellent
Implementation of Policies	3.22	Above Average
Performance of duties and responsibilities	3.19	Above Average
Overall Mean	3.23	Above Average

Further, the students' assessment of the admissions office delivery of operational guideline in terms of *implementation of policies* is above average (3.22 mean). The results showed that for them, the most important is that *"enrollees are made aware that down payment are done first before they will be given subject loads"* (3.44 mean). This means that admission is above average in the implementation of student tuition obligation. On the other hand, the lowest item is *"if non-Filipino citizen, the study permit must be approved by DFA or Immigration before enrolling"* with a mean of 3.07. This implies that the admission office lacks assessment on foreign students which can lead to a decrease of enrollees and emersion of learning from other foreign students (Simner & Mitchell, 2007).

Lastly, the students' assessment of the performance of duties and responsibilities is above average (3.19). This is highlighted by their observation that while the "admissions officers provide clear instruction on how to go over the process" (3.32), it is not as much as that of the "awareness of the different government and private scholarships information" (3.12) and the "testing center providing results of the exam on time" (3.03). This means that admission office insures and maintains a complete and updated data bank of documents and information of students and ensures the integrity of such records of the students. Yet, it must improve the testing center for the entrance exam result and help students become more aware of the different scholarship programs offered by the institution in order to satisfy the students' needs during enrollment (Kuh, Kinzie, & Buckley, 2006).

The overall mean of 3.23 (above average) means that the admissions office conforms and is not far from its prescribed operational principles as stated in the manual.

Assessment of the Admissions Office Practices

Table 2 summarizes the students' assessment of the delivery of admission office practices in terms of marketing and communication, recruitment and admissions, career service, financial aid, orientation, and retention.



Marketing and communication activities are assessed above average (3.08). An important indicator for this is that "marketing officers are friendly and I am interested to enroll in the institution" (3.13). This means that through marketing activities, the admission office gains positive response from prospects to enroll in the institution which leads to increase in the number of enrolled students in the University, allowing the institution to position itself within the competitive environment (Moogan, 2011). The study showed that 179 or 59.08 % out of 303 participants said that marketing and communication is above average. Only 3 or 0.99 % out of the total said that it is below average. This may be caused by their score in the observation that the "institution's social media platforms are up-to date and engaging" (lowest mean of 3.01). This means that the admission office needs to improve the use of social media as one of the factors in the marketing to increase in enrollment (Ding, Cheng, Duan, & Jin, 2017).

Item	Average Mean	Interpretation
Marketing and Communication	3.08	Above Average
Recruitment and Admissions	3.18	Above Average
Career Service	3.22	Above Average
Financial Aid	3.30	Excellent
Orientation	3.26	Excellent
Retention	3.27	Excellent
Overall Mean	3.22	Above Average

Table 2: Assessment of Student-participants of theAdmissions Office's Delivery of Practices

The students' assessment of the practices of the admissions office in terms of marketing and communication activities is a mean of 3.08 or above average. This means opportunity for further improvement, and implies that admission officers must live in the belief of Clagette & Kerr (1994) that management can be defined as a coordinated effort to influence prospective clients.

The study also revealed 154 or 50.83 % of the participants out of the total participants said that the recruitment and admissions activities are above average, while 128 or 42.24% of the participants noticed that the admissions office is doing its best in the recruitment procedure. Only 18 or 5.94 % of the participants said that it is rarely above average and 3 or 0.99% said that it is not above average. The highest rated factor is the admissions officers' ability to be "approachable and provide complete instructions for any transactions done under their office" (3.23), but not as the scores for "admissions officers are participative in different activities and job fairs" (3.13) and "admissions officers are friendly and available for prospective students who visit for a tour around the institutions" with the same mean of 3.13. Recruitment and admissions activities are important because these can serve four purposes: information gathering, decision making, verification of application data, recruitment and giving friendly relationship. The first and last of these merit special attention. Meeting students enables an admission committee to gather information about a candidate that would be difficult or impossible to obtain by any other means yet is readily evaluated in an interview (Lumb & Vail, 2004).

In the assessment of the practices of the admissions office in terms of career service activities, the data showed the highest mean item is "*The institution is good in keeping employment data information of students*" (3.29) or an excellent rating. The lowest item is "*the institution provides assistance to graduates in locating full-time employment*" (3.17) or above average. The average mean of the practices of the admissions office based on practices in terms of career service activities is 3.22 or "Above average". This means that the practices of the admissions office based on practices in terms of career service activities in terms of career service activities should be developed and enhanced.

In the students' assessment on the practices of the admissions office in terms of financial aid activities. The data reveal that the highest item is *"the institution provides different scholarships that can really help students especially those in who need it most"* with a mean of 3.36 or excellent. The lowest item is "The institution is active and supportive in promoting financial aid workshops for students" with a



mean of 3.25 or "above average". This means that institution should be concerned in promoting the financial aid workshops for the students. The Financial aid is a serious policy handle for increasing college admission, choice, and attainment. Even with the considerable investment in financial aid programs, inadequate financial funds carry on to limit post-secondary educational attainment (Perna & Steele, 2011). The average mean of the students' assessment on the practices of the admissions office practices in terms of financial aid activities is 3.30 or excellent. Indeed, the admissions office must give importance in assisting and supporting students when it comes to financial aid. According to Dennis (1998), the financial aid officer for public and private institutions plays an essential role on students' decision to register at a particular college.

In the students' assessment on the practices of the admissions office in terms of orientation activities. The data reveal that the highest item is "The Institution is consistent in making sure that new students will be oriented" with a mean of 3.30 or "Excellent". It is followed by the lowest item like "I find it appropriate that the institution conducts a separate orientation for non-traditional or special student groups" with a mean of 3.20 or "Above average". It is very important that there will be a separation of orientation for non-traditional or special student groups because it reflects substandard facilities of school institutions (Hibel, Farkas, & Morgan, 2010).

In the students' assessment on the practices of the admissions office in terms of retention activities. The data reveal that the highest item is "I find the faculty and staff committed in their responsibilities in the institution" with a mean of 3.31 or "Excellent". It is followed by the lowest item "I find the faculty and staff consistent in doing follow-up on dropped out students" with a mean of 3.24 or "Above average". This means that retention of students happens if school manager is effective in the four main categories namely: supervisory style, the supervisor competence, supervisor characteristics and approaches. However, the recruitment, retention, and growth of school principals are matters of great significance for all school systems because effective educational management is completely fundamental to bringing about developments and move forward in all those activities, organizations, and processes that promote the provision of education and student learning (Chapman, 2005).

Significant Difference in Delivery of Operational Principles and Practices and Student Profile

Table 3 shows the significant difference in the assessment of students of admissions office performance based on its operational when these students are grouped according to their profile. It reveals that sex (P-value=0.364) and course (P-value=.604) has no significant difference in the achievement of objectives since the P-value is above 0.05 level. Moreover in the implementation of operational principles the data reveal that sex (P-value=0.096) and course (P-value=0.147) has no significant difference on the implementation of operational principles since the P=value is above 0.05 level. Regarding the performance of duties and responsibilities the data show also that there is no significant difference on the assessment of participants in terms of profile, having the sex (P-value=0.095) and course (P-value=0.882) is above 0.05 level. This means that in the assessment of the operational principles, sex and course of students do not matter.

Principles when Students are Grouped According to Profile							
Achievement of Objectives							
Demographics	Groups	Mean square	Sig. (2-tailed)	Interpretation			
Sex	Sex Male 3.26 0.364 Not Significant						

Female

Between Groups

Within Groups

Male

Course

Sex

3.25

3.71 88.69

3.24

0.604

0.096

 Table 3: Test of Difference in Assessment of Admissions Office Delivery of Operational

 Principles When Students are Grouped According to Profile



Implementation of Operational principles

Not Significant

Not Significant

	Female	3.32		
Course	Between Groups	5.43	0.147	Not Significant
	Within Groups	84.71		
	Duties	and Responsibilitie	S	
Demographics	Groups	Mean square	Sig. (2-tailed)	Interpretation
Sex	Male	2.84	0.095	Not Significant
	Female	2.87		
Course	Between Groups	1.69	0.882	Not Significant
	Within Groups	60.48		
Note. Significant if the Sig.	level is < .05			

Table 4 presents the significant difference in the Admissions Office performance based on its practices among participants according to their profile. The data reveal that sex (P-value=0.333) and course (P-value=0.835) in Marketing and Communication; sex (P-value=0.195) and course (P-value=0.676) in Admission and Recruitment; sex (P-value=0.666) and course (P-value=0.279) in career service; sex (P-value=0.573) and course (P-value=0.337) in retention and course (P-value=0.180) in orientation has no significant difference in the assessment of the admissions office practices in terms of their profile since all the P-value are all above 0.05 level. Moreover, the data reveal that sex (P-value=0.001) and course (P-value=0.041) in financial aid and sex (P-value=0.039) in orientation has significant difference in the assessment of the admissions office practices in terms of their profile since the P=value are all below 0.05 level. This means that in the assessment of the admissions office practices particularly in the financial aid and orientation activities the participants profile matters.

Table 4: Test of Difference	in Assessment of Admissions	Office Delivery of Practices
When Stu	dents are Grouped According	g to Profile

	Marketin	g and Communica	tion	
Demographics	Groups	Mean square	Sig. (2-tailed)	Interpretation
Sex	Male	3.07	0.333	Not Significant
110	Female	3.10		
Course	Between Groups	2.77	0.835	Not Significant
	Within Groups	89.82	/K. E. //	//
	Admissi	ion and Recruitme	ent	
Sex	Male	3.15	0.195	Not Significant
	Female	3.19		
Course	Between Groups	3.63	0.676	Not Significant
	Within Groups	94.09		
	C	Career Service		
Sex	Male	3.19	0.666	Not Significant
	Female	3.26		
Course	Between Groups	4.68	0.279	Not Significant
	Within Groups	80.60		
		Financial Aid		
Sex	Male	3.32	0.001	Significant
	Female	3.46		
Course	Between Groups	6.48	0.041	Significant
	Within Groups	81.55		
		Orientation		
Sex	Male	3.30	0.039	Significant



	Female	3.40		
Course	Between Groups	5.70	0.180	Not Significant
	Within Groups	ıps 87.21		
		Retention		
Sex	Male	3.34	0.573	Not Significant
	Female	3.35		
Course	Between Groups	5.01	0.337	Not Significant
	Within Groups	91.91		
Note. Significant if the Sig.	level is < .05			

Discussion

The results of this study for an admissions office in a University support management principles which will lead to improved services such as shortened response time, increased satisfaction and fewer administrative processes. Hossler (1990) and Bean (1990) asserted that upon matriculation, new student orientation and academic advising often create a lasting impression. Thus, the considerable investment in monetary aids programs, however, insufficient financial resources go on to limit post-secondary educational achievement. The perseverance of financial barriers in spite of the substantial yearly speculation in student financial aid programs proposed the need to better appreciate the responsibility of financial aid in promoting college chance (Perna & Steele, 2011).

Enrollment management within institutions begins with identifying the strategic purpose and mission of the institution. Enrollment management as a model makes the harmonization of the marketing, admissions, recruitment, pricing and aid, retention programs, academic support services, and program development as a strategy to achieve an institution's ideal profile. Leaders of institutions of higher education must choose to look within to determine if their organizational structure is working effectively to meet the needs of the entire organization.

Financial aid, orientation and recruitment practices have been very visible and felt by the students as they were all rated excellent. Partly, the admissions office practices were known by the players since they were practiced not just in the office of the admissions but also in their respective offices.

Hence, based on the findings of this study, it is deemed imperative to design an action plan that will guide the major players of the management and will successfully implement and execute its operational principles.

The admission office is excellent in achieving its objective as rated by the participants. In term of the implementation of operational principles and performance of duties and responsibilities the office was rated above average. The office therefore should deliver and execute more its operational principles to serve more the clientele of the institution. Office practices particularly marketing and communication, recruitment and admissions and career service were all practiced but not all the times. This is true since the admissions officers are just trained for a short period of time and have not yet embodied the office practices. The office however was preparing the players as early as possible for this year so they would have more time to practice the office transactions.

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Satisfactions of Department and School Improving the Undergraduate Student Retention: A Freshman Study.

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ABSTRACT

The Ministry of Education in Taiwan released the survey of student retention rate in the end of 2018. The student retention rate has become one of the most important indicators of the quality of the university and it once again evokes the importance that universities attach to the student retention. Therefore, this article aimed to explore factors associated with students' retention of undergraduate students in the first year. A sample of 340 undergraduate students was collected through an online questionnaire, and we surveyed information regarding dropout intention with 3 items, basic demographics, economic status of the family, living area, admission method, and awareness of the department with 6 items, the satisfaction with the department's curriculum with 3 items, and the satisfaction of school with 26 items. The data was used to build a multiple logistic regression model. The main finding indicated that the students' satisfaction of teaching quality of department's curriculum, and flexible/efficient school administration are positive associated with the student retention. In addition, other factors such as gender, economic status of family, living area, admission method and awareness of the department retention.

Keywords: Student Retention, Satisfaction, Administration System, Teaching Quality





Introduction

The university operations in Taiwan are facing two huge challenges. The first challenge is the birth rate long held at one of the world's lowest (World Population Review, 2019), and it led to the shortage of freshmen. Figure 1 clearly describes this phenomenon. The number of freshmen had dropped from 277,756 in 2012 to 240,810 in 2017 (Dept. of Statistics, MOE, 2019). Furthermore, the number of freshmen in Taiwan were starting to decline rapidly from 2015. According to estimate made by the Taiwan Ministry of Education, the number of freshmen in Taiwan will drop to 160,000 in 2028 (Dept. of Statistics, MOE, 2019). Therefore, either the public or private universities were engaging in freshman recruitment currently. It caused the competition of freshmen recruitment, responsibility stress of performance, and reducing the budget and public funding from the government for higher education (Hu, 2018; Ministry of Education, 2016). Thus, the teaching quality of higher education has impacted by above situation seriously (Lee, 2010). Further, to deal with the issue of teaching and learning efficiency, enhance the administration performance, integrated the financial resources become the urgent barriers for universities in Taiwan (Fu, Sung, See & Chou, 2018). The second challenge is that the excessive number of Taiwanese universities leads to a low threshold for university education, and almost everyone has the opportunity to go to college. Students who are not suitable for further studies or have a lower willingness to pursue higher education also enter university, which results in a high number of dropouts. Figure 1 shows that the number of students' dropouts in Taiwan continues to increase and reaches 68,258 in 2017. But we think that this problem can be improved, and it is very important to investigate how to increase the retention rate of freshmen, especially for vocation higher education in Taiwan.



Figure 1: Number of freshmen and dropouts in Taiwan from 2012 to 2017 Source: Dept. of Statistics, MOE, (2019)

The dropout and retention are caused by many factors that are related to students' personal issues, academic and pedagogical aspects, and university management. For example, Costa, Bispo and Pereira (2018) showed that the risk of men's dropout is consistently greater than the risk of women's dropout. Astin (1975) mentioned that students from low-income families are more likely dropout, mainly because they may need to be self-sufficient in the economy. In addition to academics, they also need to consider economic issues, so the motivation for learning may be lower. Reibnegger et al. (2011) indicated that cumulative probability of dropout was significantly reduced in students selected by active admission procedure versus those admitted openly. Astin (1997) showed that students' learning satisfaction has a direct relationship with whether to continue studying, so improving students' satisfaction with the school is an effective way to reduce student dropout. In this paper, we explored factors which were associated with students' retention based on literature review above and empirical experience of institutional research to obtain the influential factors of freshmen retention.



Methodology Population and Sample

The data was collected through an online questionnaire named "Freshman Learning Adaptation Survey" at Yuanpei University of Medical Technology during 20th November, 2018 to 10th December, 2018. Because there exist heterogeneities in the background and source distribution of freshmen among the three colleges in Yuanpei University of Medical Technology, the sample of 340 freshmen admitted to the three colleges was obtained by utilizing quota sampling.

Independent and dependent variables

In the end of 2018, the Ministry of Education in Taiwan released the survey of student retention rate which is the percentage of freshmen who continue their studying in the sophomore year. In this research, the dependent variable "Retention" is a dichotomous variable which indicates the intention of a freshman who will continue studying in the sophomore year. If all the responses of following three 5-point Likert scale questions "Consider transfer", "Consider re-take the university exam" and "Consider taking a break from school" is either "Disagree" or "Strongly Disagree", it belongs to the first category "yes" of "Retention". Otherwise, the other responses belong to second category "no". The independent variables include gender, family economic status, living area, admission method, awareness of the department with 6 questions, the satisfaction with the department's curriculum with 3 questions, and the satisfaction of school with 26 questions. Each question of the awareness of the department, of the satisfaction with the department's curriculum, and of the satisfaction of school was also measured by 5-point Likert scale. The values of these variables are from 1 to 5 and positively related to the responses of questions.

Results

Descriptive statistics and t test

The results in Table 1 indicates that 52.9% of students have intention of continuing studying in the sophomore year. There are more female freshmen than male freshmen at this university. Over 90% of students, their family economic status is middle or high, and 8.2% of students face family economic difficulties. Nearly half of the students live in a county or city that is far from the school. 58.8% of students enrolled this university through admission application, and the remaining 41.2% of students were through examination distribution.

Table 1: Descriptive statistics for categorical variable					
Variables	Description of variables	Category	Frequency	%	
	A freshman who will	1=Yes	180	52.9%	
Retention	continue studying in the sophomore year	0=No	160	47.1%	
Condor	Gondor of students	1=Male	125	36.8%	
Gender	Gender of students	0=Female	215	63.2%	
	Family economic status	3=High	80	23.5%	
Feconomy		2=Middle	232	68.2%	
		1=Low	28	8.2%	
Area	Living area. Local area includes Taoyuan City, Hsinchu County, Hsinchu	1=Local area	172	50.6%	
	City, and Miaoli County	0=Non-local areas	168	49.4%	
Admission	Admission method	1=Admission application	200	58.8%	
Admission	Admission method	0=Examination distribution	140	41.2%	



In Table 2, the sample means of variables are larger than or equal to 3 except variable S24. Hence, the students trend to have positive awareness of the department (A1 to A6), to satisfy the department's curriculum (C1 to C3), and to satisfy the school (S1 to S26). Table 2 also shows the value of test statistic of one-sample t test for null hypothesis H_0 : μ =3 of each variable. Only the sample means of variables s22 and s24 are not significantly different from 3. It implies that the freshmen only feel campus living function and traffic function not convenient enough.

	satisfaction of school		
Variables	Description of variables	Mean	t
A1	Learning scope and objectives	3.4	9.1
A2	Core competencies to graduate	3.6	12.2
A3	Curriculum planning and requirements	3.5	12.1
A4	The relationship between the curriculum and future employment	3.7	14.6
A5	Ability developed by each course	3.6	13.0
A6	Graduation conditions	3.6	12.4
C1	Course challenge degree	3.4	9.3
C2	Teacher professionalism	3.6	13.2
C3	Teaching quality	3.5	12.1
S1	Flexibility and efficiency of school administration	3.2	5.2
S2	Convenience of the course selection system	3.5	10.1
S3	Easy-to-use school website	3.4	8.5
S4	Richness of professional book resources (including journals and electronic databases)	3.6	12.1
S5	Perfection of library facilities	3.7	14.1
S 6	Internship mechanism linked to employment	3.5	11.9
S 7	Complete life, career and counseling mechanisms	3.5	11.8
S 8	Perfection of license counseling and funding support mechanism	3.4	9.1
S9	Perfection of competition counseling and funding support mechanism	3.4	9.3
S10	Richness of international communication resources (eg: exchange	2.4	05
510	students, double degrees)	5.4	8.5
S11	Adequacy of multiple learning opportunities (eg: auxiliary, double major)	3.4	9.1
S12	International learning environment (eg: taught in English)	3.3	7.0
S13	Flexible and reasonable course arrangement	3.4	9.3
S14	Perfection of course counseling and assistance pipeline	3.4	9.6
S15	General education course	3.4	7.8
S16	E-learning and information environment	3.4	9.2
S17	Practicality of teaching equipment	3.4	8.9
S18	Classroom comfort	3.4	8.8
S19	Richness of student club activities resources	3.4	8.3
S20	Perfection of accommodation resources	3.2	4.3
S21	Student restaurant and meal planning	3.2	3.7
S22	Convenience of campus living function	3.1	1.7
S23	Cleanliness of the campus environment	3.4	8.4
S24	Convenience of traffic function	3.0	-0.1
S25	Clarity and practicality of renting information	3.2	5.1
S26	Clarity and practicality of working and scholarship information	3.3	6.0

Table 2: Descriptive Statistics for awareness	of the department,	department's curriculum	, and
satisfacti	ion of school		

Note: The variables A1 to A6 measure the awareness of the department, C1 to C3 measure the satisfaction with the department's curriculum, and S1 to S26 measure the satisfaction of school.

Logistic regression analysis

The binary logistic regression model was built by using SPSS, and variable selection method adopted forward stepwise selection method with entry testing based on the significance of the score statistic, and removal testing based on the probability of a likelihood-ratio statistic based on the maximum partial likelihood estimates. Results of logistic regression model are displayed in Table 3. The mathematical equation of this model is as follows:

$$\ln\left(\frac{P}{1-P}\right) = -2.547 + 0.365(C3) + 0.426(S1)$$

where P is the retention rate of the freshman, and variables C3 and S1 indicate the teaching quality of department's curriculum and the flexibility and efficiency of school administration respectively. Data show the teaching quality of the freshman's department and the flexibility and efficiency of school administration are significantly positive related to freshman's retention intention. The p-value for teaching quality of the freshman's department was 0.014 with a Wald value of 6.042. The odds ratio of Exp.(B) for teaching quality of the freshman's department was 1.440 with a 95% CI [1.077, 1.926]. The odds ratio value indicates a 44% increase in the odds of retaining freshmen for every additional level of increasing teaching quality of the freshman's department. The p-value for flexibility and efficiency of school administration was 0.004 with a Wald value of 8.442. The odds ratio for flexibility and efficiency of school administration was 1.531 with a 95% CI [1.149, 2.040]. As the freshman's satisfaction of flexibility and efficiency of school administration increased one level, the odds increased 53.1% that the freshman was retained. However, the variables of gender, family economic status, living area, admission method, and awareness of the department showed no influence in relation to freshmen retention.

Table 3: Logistic regression of freshman retention					
Variable	B	Wald	р	Exp.(B)	95% CI
C3	0.365	6.042	0.014	1.440	[1.077, 1.926]
S1	0.426	8.442	0.004	1.531	[1.149, 2.040]
Constant	-2.547	17.622	0.000	0.078	

Note: variables C3 and S1 indicate the teaching quality of the freshman's department and the flexibility and efficiency of school administration respectively.

The Hosmer-Lemeshow test (Hosmer & Lemeshow, 2013; Fagerland & Hosmer, 2017) is used to test the goodness of fit for the logistic regression model in Table 3, and the output returns a chi-square value of 3.553 and a p-value of 0.615. Here, the model adequately fits the data. Another way to measure how well the logistic regression performs is to compare observed outcomes in the data and the predicted outcomes which is made by using following equation

$$P = \frac{e^{-2.547+0.365(C3)+0.426(S1)}}{1+e^{-2.547+0.365(C3)+0.426(S1)}}$$

to calculate the predicted retention rate and using 0.5 as the cut-off value. In Table 4, there are 116 students (64.4%) of the freshmen with retention intention and 95 students (59.4%) of the freshmen without retention intention can be correctly classified, the overall percent of cases that are correctly classified is 62.1%.



	Predicted		
Observed outcome	Having	No	%
Observed outcome	retention intention	retention intention	Correct
Having retention intention	116	64	64.4%
No retention intention	65	95	59.4%
		Overall:	62.1%

Table 4: Classification table of predicted vs. observed outcomes of the logistic regression model for freshman retention

Conclusions

During the first year university, it exists relatively high dropout rate. However, the relative lack of academic performance and other evidence-based data in this short period can be used to study how to decrease the freshmen dropout intention to increase freshmen retention. After freshmen enrolled for 3 months in 2018, we used questionnaires to understand the adaptation of freshmen to learning and life. This data was also used to investigate which factors had influences on the freshmen retention by building a logistic regression model. Through the logistic regression equation, we can obtain the predicted retention rate of each freshman. It can provide preventive counseling for the freshmen with low retention rates. This model also indicates that both of increasing teaching quality of the freshman's department and increasing flexibility and efficiency of school administration are helpful to retain freshmen. This objective university is adopting teaching drills of every teacher in each department and teaching observations of excellent-teaching teachers to increasing flexibility and efficiency of school administration guality. An app for teachers and students who can use the administrative process functions such as message announcement, information inquiry, and leave is also being promoted to increasing flexibility and efficiency of school administration.

Recommendations

We recommend that universities conduct surveys of life and learning adaptations for freshmen. If freshmen adapt well in college, they should have a higher chance to continue studying. Moreover, departments and universities can explore the worthwhile improvement items from the perspective of freshmen, and make the administration of the department and the universities more perfect.

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A Take-Off Point for Retirement Program

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ABSTRACT

The growing challenges and opportunities presented by the global economy in the twentyfirst century are causing an increase in anxiety and instability often in individuals with limited background in financial literacy. The most prone of this occupation are teachers in the public school system who constantly face problems on how to save, plan and prepare for retirement. This study delved on the factors affecting retirement planning focusing the relationship between financial knowledge, attitudes and practices of public school teachers. Descriptive correlational research design was used to 143 respondents complemented by a focus group discussion high ranking personnel in the Department of Education - El Salvador City Division. The data were analyzed using statistical tests in frequency, mean and correlation. Results revealed that respondents are highly knowledgeable when it comes to financial knowledge. The socio demographic profile of the respondents particularly age has no significant relationship to the respondents' financial knowledge, attitude, and practices, with the exception of those belonging the 22 - 40 age group and those in the older age above 40, when age is correlated to financial practices. In conclusion, there is a definite proof of high level financial knowledge and financial practice in this study leading to a better savings and investments with the right financial instruments, and in managing their assets and liabilities. Financial attitude plays an important role as well as in the coordination of financial knowledge and practice. In all, the study recommends building a comprehensive and practical financial literacy program relative to the tenure of the teachers and their impending retirement.

Keywords: Financial Knowledge, Financial Literacy, Financial Attitude, Financial Practice, Financial Management







Rationale

Retirement may be taken as too distant future that many are overtaken at the time when it comes too swiftly unprepared to face it. It is certainly a critical stage in human experience. Changes in existence require modifications in identification, perceptions, feeling and action (Goold 2007). Retirement stage creates a unique phase ushering a new person that entails adjustment from being career oriented person, change of support network from work, spending more time with family and finding new engaging ways to stay active and alive. Retirement period requires a psychological and psychosocial adjustment. Those who properly planned for their retirement earlier are those who usually experienced their retirement period with manageable financial challenges and thus they were able to experience retirement stage as honey moon phase wherein they enjoy relaxation and rest free from the stresses of employment (Odu,1998). Borrrowing from Belsky (1990), retirement is a changeover from the daily routine of work to the rest phase because of old age or lengthy years of service. In the Philippines, the story is quite different. Instead of enjoying the retirement age, East Asia Retirement Survey found out that 90% or 9 out of 10 Filipino workers are losing their savings, in bad health, and have no one to take care of them when they retire. Consistent with was reported by the Department of Education (DepEd) that in the year 2016, there were 26,000 teachers who were not able to receive any retirement benefits due to outstanding loans. Thus, the Department of Education are now taking steps to help teachers' combat indebtedness. Last May 2018, the Education Secretary, Bangko Sentral ng Pilipinas (BSP) Governor, and Banco de Oro Foundation (BDOF) president signed a memorandum of agreement to help strengthen financial literacy programs to public schools. There is a growing concern in the Philippines that millions of Filipinos are not ready for retirement (Ravalo, 2009). This leads to a common practice that reliance on children during retirement is the main recourse. Nowadays, leaving an inheritance is a more preferred situation to asking children and relatives for assistance to retirees. Many government sectors are becoming increasingly aware that each one must become more responsible for retirement planning and personal financial well-being. However the report that there were 26,000 public school teachers in 2016 that were not able to receive any retirement benefits due to outstanding loan is an alarming figure. This study determined the factors affecting secondary public school teachers' retirement planning.

Statement of the Problem

Accordingly, the research questions posed in this study were the following, what is the respondents` level of financial knowledge, attitude, and practices? What is the respondents` extent of retirement plan and management? Is there a significant difference in the financial knowledge, attitude, and practice according to respondents` profile? Is there a significant relationship between retirement plan and management and the financial knowledge, attitude, and practice? What 21st century retirement program that can be developed to maximize well the financial capabilities of the teachers?

Framework of the Study





Schema of the Study

The schema of the study shows the relationship between the independent variable and dependent variable where the independent variables comprises the demographic profile of the respondents like their age, sex, length of service, level of qualification, and monthly income. The dependent variable of this study is the financial knowledge, attitude, and practices (KAPs) of the respondents and the retirement estate planning and management. Theses KAPs has a direct relationship with the retirement and management planning.

Income refers to the sum total of a person's earnings from various sources (Atkinson, Piketty& Saez, 2011). A person's level of income determines the consumption pattern, purchasing power, and savings capacity. This in turn affects the investments the person wanted to have. Income is also affected by taxation. A tax is an obligation levy by the government on all income earned by citizens of a country. Taxation decreases a person's disposable income and therefore retirement planning requires skilled tax management.

One way is to participate in defined contribution retirement plans such as those offered in the private insurance and occupational pension scheme like the GSIS and SSS, which are tax free. These plans provide advantages such as tax deductible contributions, employer matching contributions, tax deferred growth of interest, capital gains and dividends. In the case of Pag – ibig Fund, they offer to the employee an opportunity to start saving early with the benefit of accumulating large savings for retirement (Garman& Forgue, 2011).

This study was anchored in Life Cycle Theory of Consumption by Modigliani and Blumberg and later revised by Modigliani and Ando and Modigliani and Blumberg in 1980. The theory take a firm stand that individuals try to maximize their personal well-being by means of balancing an entire life movement of income with a lifetime sample of consumption. He notes that one of the most essential reasons for placing money aside is the need to provide for retirement. Modigliani further argues that the life cycle story is such that the wealth of a country gets handed around. In the macroeconomic context, Modigliani and Blumberg (1990), contend that the economic system as an entire and the saving ratio must be consistent over the long run (provided the rate of increase of the economic system does not change), however will vary pro-cyclically over the business cycle. Therefore, over the business-cycle, as over the life- cycle, consumption is smoother than earnings. Decision making in retirement planning can be affected by some factors as depicted within the Behavioral Foundations of financial theory where the behavioral life-cycle theory of a person is primarily based on an analysis of real, now not best rational, human behavior and is based on 3 pillars: self - control theory, - mental accounts, assumption that the manner in which options are provided is crucial in decision making. For this reason, as soon as behavior of deciding to have a retirement plan is grounded on the actual – what a person observes and experience around with the ones having a retirement planning embedded along with his self -control in savings for pension plan with a pre planning in thoughts to pursue it (Griffin, Loe & Hesketh, 2012)

Methodology

The research design employed the descriptive research method which describes the process in collecting and analyzing data. Hence, this study utilized the two general approaches in collecting and analyzing data: the survey questionnaire and the Focus Group Discussion (FGD) to high ranking officials in the Department of Education, El Salvador City. These involved collection of data that provided information and description on the financial knowledge, attitude and practices among secondary public school teachers of El Salvador City through survey questionnaire as basis to know the factors affecting their retirement planning. To supplement and verify some information that was gathered from the questionnaire, a Focus Group Discussion to some high ranking teachers, Human Resource Officers and Administrative officers was conducted. Frequency counts, percentage, mean, standard deviation, and pearson product moment correlation were statistical tool used since the conditions of the parametric were met. Such that the population was clearly defined, samples were normally distributed, and variances were assumed to be equal. The respondents of the study were the whole population of the



teaching staff of secondary public school teachers of El Salvador City Division School year 2018 – 2019. These comprise 143 respondents.

Results

Respondents' Level of Financial Knowledge, Attitude, and Practices.

Table 1 . Level of Financial Knowledge	
Areas in Financial Literacy	Interpretation
1. Valuing insurance as a way to risk of financial disaster	
2. The relevance of financial planning in attaining financial goal	
3. The high likelihood of attaining goals when budget and plan are created.	Highly
4. Understanding that having several types of investments and savings decreases financial risks.	Knowledgeable
5. Making a better financial decisions if those decisions are based on	
financial needs.	
 4. Understanding that having several types of investments and savings decreases financial risks. 5. Making a better financial decisions if those decisions are based on financial needs. 	Highly Knowledgeable

Table1 revealed five areas in financial literacy where respondents are highly knowledgeable. These are valuing insurance as a way to reduce the risk of financial disaster, the relevance of financial planning in attaining financial goals, the high likelihood of attaining goals when budget and plans are created, and of understanding that having several different types of investment and saving decreases financial risks and making a better financial decisions if those decisions are based on financial needs.

Increased financial literacy has a positive impact on people's personal and business life (Taft et al., 2013). Also in Vitt et al. (2000), the greatest advantage of financial literacy education is reducing employees' financial problems and encouraging them to be responsible. Associating this with the Focus Group Discussion, it revealed that retirement planning where it includes financial literacy is deemed necessary to safeguard future needs and priorities which results to a better working performance.

When looking at the respondents level of attitude towards financial management, the study revealed that they highly agree on the importance of developing a regular pattern of savings and sticking to it, having written financial goals to help them determine priorities in spending, in creating a written budget as essential in financial management, in planning for the disability of a family`s wage earner or head of the family and in accepting that both husband and wife should have some responsibility for seeing that bills are paid regularly.

The study also revealed important results on the respondents' level of practices on financial management. The respondents reported highly practicing habits of following a weekly or monthly budget, and of estimating household expenses to appropriate funds for it.

Respondents' Extent of Retirement Plan and Management.

Table 2 shows the respondents moderately prepare for their retirement plan or savings. The overall mean is 2.77 (True) where participants were moderately engage in activities that help prepare for their retirement such as execution of a will, talking to a financial services counselor and contributing to a savings plan. Financial planning is important because it gives you a blueprint on how to achieve your goals (Arrondel et. al., 2013). This implies that there is a need for the respondents to be highly involved in the retirement planning process because FGD results shows that retirement is a long term goal necessary to safeguard future needs and priorities. Retirement planning involves Financial literacy thus the need to have some financial expert and financial analyst came out of the picture during FGD. This boils to the discussion among respondents on their eagerness to know more about the retirement programs that GSIS and some private pension plan providers offer.



Indicators	Mean	SD	Description	Interpretation
1. Planned out how the belongings will be			True to a	
divided up in case something happens	2.78	0.97	Moderate Extent	True
(e.g. will).				
			True to a	
2. Reviewed the will periodically.	2.52	1.07	Moderate Extent	True
3. Contributed annually to retirement			True to a	
savings plan (e.g. insurance, pension).	3.11	0.81	Moderate Extent	True
4. Used the services of a certified			True to a	
financial plan to plan the retirement.	2.73	1.02	Moderate Extent	True
5. Planned out how the belongings will be			True to a	
divided up in case something happens	2.69	1.03	Moderate Extent	True
(e.g, will).				
Mean	2.77	0.83	True to a Moderate Extent	True

 Table 2

 Mean Values of the Respondents Status of involvement towards Retirement Plan and Management

3.26 - 4.00, Always True; 2.51 - 3.25, True; 1.76 - 2.50, Sometimes True; 1.00 - 1.75 Not True

Significant difference between retirement plan and management and the financial knowledge, attitude, and practice.

As shown in table 3, there is a significant and moderately strong correlation between ratings on financial knowledge and extent of retirement planning and management and between ratings on financial practice and extent of implementation of retirement plan and management. Data shows there is a significant correlation between ratings on financial attitude and the extent of implementation of a retirement plan and management. This result take affirms with the Life Cycle Theory of Consumption (Modigliani and Blumberg, 1980) which take a firm stand that individuals try to maximize their personal well-being by means of balancing an entire life movement of income with a lifetime sample of consumption (Financial Knowledge and Practice). In which this theory assert that the intentions to carry out behaviors of various types may be anticipated with high accuracy from the attitudes closer to the behaviour. One of the most essential reasons for placing money aside is the need to provide for retirement (Modigliani, 1980). In the context of retirement planning, a person's motives to gain knowledge and perceptions of the various ideas like financial literacy use for retirement planning, an individual has to have the proper mind-set in understanding the characteristic of a particular idea. Ajzen (2010) argues that people are more likely to carry out or intend to carry out behaviors over which they experience high degrees of control than the ones over which they sense little control. Accordingly, financial literacy for retirement planning can be described as a deliberate behavior (Griffin, Loe & Hesketh, 2012). With the intention to have a legitimate selection making, one has to have a sufficient information of specific products or services he wanted to have. The significance of obtaining an understanding of the retirement planning, sufficient understanding on the specific pension policies provided in the government sector and in non-public companies is essential. An individual usually has the financial knowledge and practice but sometimes don't have the financial attitude thus the level of financial knowledge has an impact on financial behaviour –attitude (Robb & Woodward 2011). Knowledge is clearly an important component in financial decision-making, but other factors play a significant role as well. These findings are supportive of other research that suggests that knowledge alone is insufficient to ensure better financial behaviour (Braunstein & Welch, 2002; Perry & Morris, 2005).

Table 3



Variable	R	P-value	Decision on H_0	Interpretation
Knowledge	0.426	0.000	reject	Sig.
Attitude	-0.038	0.656	accept	Not sig
Practice	0.503	0.000	reject	Sig

Coefficient Correlation and Significance of Relationship between ratings on Retirement Plan and Management and financial Knowledge, Attitude and Practice

21st century retirement program

Based on the series of interviews conducted and data gathered from the respondents, majority of them during Focus Group Discussion (FGD) have this common idea of retirement as a long-term necessary plan that one has to prepare to safeguard future needs and priorities. When it comes to their retirement plan involvement, they were moderately involved but they were eager to learn on some retirement benefits that GSIS offers. With this, a Government Security Insurance System (GSIS) Retirement Information Drive is needed where most of the respondents wanted to have an add-on GSIS benefits on top of their current benefits. These add-on benefits can be in the form of health and medical insurance. The succeeding page is crafted to serve as guide for the public school teachers and when they prepare for their eventual retirement. There are many reasons why people work. For many, work is needed to provide themselves and their families with the basic essentials for life--food, clothing and shelter. Once these basic essentials are met, other needs and wants become important. Working is a means of associating with people who have similar interests. Being part of a group gives people a feeling of belonging. Work can provide companionship and associations with other persons. It allows people to reach their fullest potential. Work can grow and reach a person's potential. But does it come to a person's mind to work in order to enjoy their retirement stage? Retirement seems to be underestimated by the majority. Retirement planning is as equally important as planning for the future. It is on this stage of life where a person could no longer do the rigorous activities both physically and mentally as compare to his youthful days.

Schedule- In-Service Training (INSET) - every End of the School Semester and every end of the month financial evaluation.

Participants - All secondary government teachers. Venue- School-based. School computer laboratory

Training Guide:

Module 1 focused on financial literacy for all teaching staff of Department of Education El Salvador City Division. This will help future retirees become effective and successful on money management practices. Hence, they will be provided with knowledge and tools to become financially independent

Module Number	Module Title	Target Output
Module 1	Financial Literacy Program	Individual Financial Plan
Module 2	Government System Insurance Company Information Drive	In-depth understanding of GSIS Retirement Program
Module 3	Health and Wellness Program	Living actively and happily with sound physical mind and body

after retirement. Module 2, invite Government System Insurance System (GSIS) to discuss pension plan schemes. Module 3 is formulated to encourage massive participation on retiring teachers on the health and wellness program. Specifically, this aims to provide retirees with a sound mind and body even after retirement. This is to help save for retirement, and to put ones money to work and serve as additional financial resources.

Module 1: Financial Literacy Program

This program is intended to all teachers especially to those who just joined DepEd for them to effectively veer away from unnecessary spending and extravagance. It would be wise to have knowledge on financial management in order to value their hard earned money. Likewise, the knowledge and orientation of financial literacy is very crucial to all teachers especially to those who are about to retire so they will be prepared during the retirement stage. According to Berhiem (1998), a lack of financial education may cause workers to start saving too late in life to realize their stated retirement goals. As a result they are unlikely to achieve an optimal balance between current consumption while working and future consumption in retirement. In addition, a lack of information concerning the risk-return distribution of various investments might lead to misallocate their retirement portfolios.

Learning Goal - Provide DepEd El Salvador City teachers with the information and tools to be financially literate and financially independent after retirement.

Target Audience - All DepEd El Salvador City teachers.

Date and Venue - As scheduled. *Time Allotted* - 2 hours every day for 3 days during April and October month, In-Service Training (INSET) for teachers and 1 hour every end of the month – monthly follow-up. *Learning Aids Required*- Overhead Projector, laptop, hand-outs, white board and marker.

Participants Equipment Required - Notebook, ball pen, pencil, brown envelop and hand-outs

Training Reference Used - To be provided by the invited financial planner/ analysts.

Office Primarily Responsible - DepEd El Salvador City Teachers, Division Human Resource Development (HRD) and Accounting Department, Personnel Retirement and Benefits Unit. Budgetary Requirements – Php15,000.00

Module 2: Government System Insurance System (GSIS) Information Drive

Government Service Insurance System (GSIS) offers various retirement programs that retiring members may choose from depending on their age and and length of service.

Learning Goal: Invite Government System Insurance System (GSIS) to discuss to DepEd El Salvador City teachers with the retirement benefits offered by GSIS

Target Audience - All DepEd El Salvador City teachers Date and Venue - As scheduled

Time Allotted - 2 hours every day for 3 days during April and October month, In- Servicer Training (INSET) for teachers and 1 hour every end of the month – monthly follow-up.

Learning Aids Required: Overhead Projector, laptop, hand-outs, white board and marker

Participants Document Required: Teacher's Individual Financial Plan

Participants Equipment Required: Notebook, ball pen, pencil, brown envelop an hand-outs

Training Reference Used: To be provided by the invited GSIS Personnel

Office Primarily Responsible: DepEd El Salvador City Teachers, Division Human Resource Development (HRD) and Personnel Retirement and Benefits Unit.

Budgetary Requirements: Php12,000.00

Module 3: Health and Wellness Program

Government teachers will not only focus on financial aspect of its personnel when they retire but also to its health aspect by encouraging them to take care of their health and to live a healthy lifestyle for them to combat health hazards while still in the service. Teachers can face a variety of health issues because of the rigors and stresses associated with teaching. This calls for Human Resource Management to require all teaching personnel to be physically and mentally healthy, a call to make a wellness program to designed to help keep teachers healthy. Poor eating habits, physical and mental health and the fatigue that came from long hours of work contribute to deteriorating health. As a way to encourage the personnel in maintaining the ideal fitness requirement, DepEd Management may offer plans to help personnel to stop smoking, free gym membership, Zumba Dance, engage in sports activities and weight loss programs. There is no ideal retirement without good health because health during retirement can also be also the biggest wealth. A big part of their health is mental wellness which research shows is



improve with engagements, social connections, and continued employment according to Headrick (2013). Further, he said that staying active and being fit is less about adding years to one's life and more about what is allows a person to do with his retirement. Learning Goal - To maintain teachers with sound mind even after retirement. Target Audience - All DepEd El Salvador City teachers Date and Venue - Twice a week after school hours at the School Covered Court. Time Allotted - 1 hour - twice a week for every month Learning Aids Required - Sounds system, Fitness Center. Participants Equipment Required: Sports Attire. Training Reference Used- Integrated health and fitness program. Office Primarily Responsible - DepEd El Salvador City Teachers, Division Health Department.

Conclusion

High level of financial literacy provides an important background in one's successful retirement planning. There is definite proof of high level financial knowledge and financial practice in this study leading to better savings and investments with the right financial instruments, and in managing their assets and liabilities. Financial attitude plays an important role as well in the coordination of financial knowledge and practice. This establishes the importance of developing a regular pattern of savings and sticking to it, having written financial goals to help them determine priorities in spending, in creating a written budget as essential in financial management, in planning for the disability of a family's wage earner or head of the family and in accepting that both husband and wife should have some responsibility for seeing that bills are paid regularly. There is however no correlation between financial attitude and retirement planning management. There is enough reason for teachers to constantly look for ways to improve their financial acumen. When a person is satisfied by his financial status, they show increases in work happiness and engagement. In work life, higher financial literacy often leads to higher efficiency and work productivity (Brennan, 1998).

Recommendations

As the study showed significant number of respondents who are new in the workforce, with tenure of less than five years, it is important to incorporate a regular and robust financial literacy training program as part of an on-going teacher intervention. This can be combined with a comprehensive course on financial wellness. This program should be fully customized to the growing need and challenges of teachers as they progress from being single to married, from Teacher 1 to their gradual promotion.

With the onset of younger workers joining the public school system, it is important to incorporate a regular training, coaching, and workshop on financial literacy, so their knowledge and attitudes correlate positively toward correct and prudent financial practices.

It is imperative that educators are able to safely build their retirement plans through multiple instruments other than the one provided for by GSIS. This future income stream will assure stability and continuity of economic wellness as teachers approach retirement. While financial literacy and wellness are both crucial, it should also important to include a program on taking care of personal and family health, how to adjust with increasing stressors of work, and clearly understanding the negative impact of the lack of financial planning and wasteful spending.

There has been a high correlation between effective teaching and financial wellness. Teachers who are able to manage their finances well tend to experience less anxiety, less family related issues and are therefore able to devote more of their energies into honing their craft, mastering their teaching skills and improving classroom management - all of which will benefit the students. It is further recommended that this financial training program be reviewed regularly by proven industry leaders to ensure its content and execution is practical, fit for purpose, effective and is truly a useable program.

It is finally recommended that Government Service Insurance System (GSIS) continue to meaningfully expand its training and awareness program to the teachers so they have a better appreciation of the various mechanisms available for savings, investment and retirement. This is corollary to the results in the FGD where most teachers complained not knowing the full mechanics and purposes of the various



programs that can be availed thru GSIS and also the public school teachers may refer to the different phases of retirement and the Individual Financial Life Cycle Plan (Kweong, 2013) in order to comprehensively incorporate a personal financial plan after having an in-depth learning gain from GSIS information drive and the Financial Literacy Program of activities that targets a realistic individual financial planning for an eventual retirement.

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A New Perspective on Analyzing World University Rankings

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ABSTRACT

Over the past decade, world university rankings have dominated the global higher education development. In order to have a better international reputation, many universities desperately want to improve their rankings but never contemplate how and what they could do. This paper examines the indicators of the three world university rankings (THE, QS, ARWU) from the perspective of data analysis, finding that the clustering effect and geographical distribution of universities in the ranking system are significant, especially in the THE and QS rankings. By using the Gaussian Mixture Model (GMM), seven groups of universities can be identified in ARWU, while five groups can be identified in QS, and nine groups in THE. Top universities in Europe and North America are mostly classified into one or two groups, while most universities in Asia are classified into other groups. These findings have implications for universities understanding where their positions are, who are in similar situations, and how they may try to move from one group to another in different rankings.

Keywords: World University Ranking, Institutional Research, Cluster Analysis





Introduction

Global rankings began in a small way in 2003 with the publication of the first edition of the Shanghai Rankings. These were quite simple, comprising six indicators that measured scientific research. Their purpose was to show how far Chinese universities had to go to reach world-class status. Then came the Times Higher Education Supplement – Quacquarelli Symonds (QS) World University Rankings. The methodology was very different from that of the Shanghai Rankings, relying heavily on academic surveys. Finally, the Times Higher Education (THE) World University Rankings emerged from the QS World University Rankings, completing the current influential global rankings trio. The most influential global academic rankings – the Shanghai Academic Ranking of World University Rankings – have been in existence now for more than a decade and are now a major force in shaping higher education worldwide. By using more reliable data, measuring and comparing education outcomes, and graduate employability, university-society engagement becomes more feasible, but these rankings also produce problems for universities, such as misusing the ranking results and pursuit of ranking performance, which may hinder the improvement in the quality of education.

In Asia, except for a few top universities in developed countries, such as Singapore, Japan, and South Korea, most universities cannot compete with those in North America and Europe. However, this does not imply that the quality of higher education in Asian universities is low. Rankings always present as lists sorted according to different indicators, but they lack a comparable structure among different rankings to help universities correctly understand their positioning. Additionally, rankings provide limited information about which universities may exhibit similar performance. These discrepancies make it difficult for universities to find proper benchmark universities and in turn to develop appropriate strategies for improvement. We aim here to explore what information can be provided to universities to help them better understand and respond to their ranking, as well as, what strategies may be developed in response to this enhanced understanding.

In this study, we selected the three most popular university ranking systems (the ARWU, QS, and THE) and use a cluster analysis to form a grouping perspective towards university rankings. Each ranking has different weights for its indicators, showing which fields are emphasized for that specific ranking system, but an examination of the three rankings indicated that, most of the indicators are highly related. Through understanding the clusters in rankings, universities can find the similarities and differences within their peer universities. In the long run, this study can help universities use rankings intelligently and will help them set performance improvement goals based on the different ranking systems.

Literature Review

Despite some skepticism about the methodological and practical aspects of a global methodology, the race is on to establish one. There are various actions taken by ranking organizations, governments and researchers to identify more appropriate measurements and use more reliable data to measure and compare educational outcomes, graduate employability, university-society engagement, etc. (Altbach & Hazelkorn, 2018).

Over recent years, rankings have become a significant factor and influencer on the higher education landscape and, more broadly, on society, used around the world by policymakers and decision-makers at the government and higher education institution (HEI) levels, as well as by students and parents, investors, local communities, the media, and others. The methodologies of ranking systems are still evolving, which makes these rankings controversial. For example, there are over 25,000 university-level institutions worldwide; those ranked within the top-500 would be within the top 2% in the world, however, by a perverse logic, rankings have generated a perception amongst the public, policymakers, and stakeholders that only those within the top 20, 50 or 100 are worthy of being called excellent (Altbach and Hazelkorn, 2018). In addition, these rankings focused primarily on research productivity in the beginning, but later, reputational measures were also included by the QS and THE, which are controversial due to low response rates that accentuate biases and limited perspectives. The different weights of each indicator can easily affect the performance of a university in terms of its ranking, but



the indicator weight decision is usually arbitrary. Finally, the results of rankings are mostly calculated by numbers and presented in the form of scores, which often makes people question the meaning of university rankings. Rankings are no longer simply about enhancing student choice, but are increasingly about geopolitical positioning of universities and nations.

As Altbach and Hazelkorn (2018) mensioned, assessing teaching and learning is central to determining the quality of higher education, but using current methodologies to produce comparative data is foolhardy at best. We should note that rankings simply use inadequate indicators for their commercial purposes, which will make people believe that they provide an objective and meaningful measure of education quality. Universities are hard to escape from rankings. Besides, Holmes (2019) also criticizes:

If we must have formal rankings then they should be as valid and accurate as possible, and they should take account of the varying missions of universities, their size and clientele, and should be as comprehensive as possible.

The target three ranking systems has their own features. ARWU is published by Shanghai Ranking Consultancy, which was first published in 2003 and releases its results annually. The goal of the ranking is to objectively evaluate the top 500 best universities by using quantitative data in six indicators: (1) Quality of Education (10%); (2) Staff Awards (20%); (3) Highly Cited Research (20%); (4) Nature and Science (20%); (5) Papers indexed in SCI and SSCI (20%), and (6) Per Capita Performance of an Institution (10%). All indicators are scored from 0 to 100. Comparatively speaking, ARWU focuses more on the academic performance of a university but less on the education quality or campus internationalization. It also gives more weight to natural and scientific fields than social science.

QS Ranking is published by Quacquarelli Symonds in cooperation with Elsevier. It is now comprised of global overall and subject rankings (which name the world's top universities for the study of 48 different subjects and five composite faculty areas), alongside five independent regional tables (Asia, Latin America, Emerging Europe and Central Asia, the Arab Region, and BRICS). In its global ranking, there are six important indicators: (1) Academic Reputation (40%); (2) Employer Reputation (10%); (3) Faculty/Student Ratio (20%); (4) Citation per faculty (20%); (5) International Faculty Ratio (5%), and (6) International Student Ratio (5%). However, it has been criticized for its over-reliance on subjective indicators and reputation surveys, which tend to fluctuate over the years.

Times Higher Education became known for publishing the annual Times Higher Education-QS World University Rankings, which first appeared in November 2004. In 2009 Times Higher Education broke with QS, then its partner in compiling the Rankings, and signed an agreement with Thomson Reuters to provide the data instead. The magazine developed a new methodology in consultation with its readers and its editorial board. Five indicators are used in its methodology: (1) Citations (30%); (2) Teaching (30%); (3) Research (30%); (4) International outlook (7.5%), and (5) Industry income (2.5%).

Comparing the methodologies and indicators, we can conclude several similarities and differences of the three rankings as below:

Awards and Reputation

ARWU sets heavy weight on winning academic awards. If a university has scholars winning the Nobel Prize, it will significantly improve its score in ARWU ranking. While QS and THE have indicators of reputation from academic and employer communities, reputation especially plays an important role in QS, which incurs criticism because of its evaluative subjectivity.

Research

In ARWU, all indicators except Award are about research and citations. The "Nature and Science paper" weighs heavily and counts twice in ARWU's methodology. The "Citation per faculty (20%)" of QS and "Research (30%)" of THE are both indicators about research.

Teaching

ARWU does not have an indicator regarding teaching, while QS and THE both use the faculty-student ratio as the main evaluation of the teaching score. THE further employs "Doctorate-to-bachelor's ratio",



"Doctorates-awarded-to-academic-staff ratio", and "Institutional income" for calculating detailed teaching score.

Internationalization

ARWU does not have an indicator about internationalization, while QS and THE have indicators regarding international faculty and international students. However, compared with other indicators, the weight of internationalization is relatively low (under 10%) in the two rankings.

If we use the intersectional dataset from the three ranking systems (among 257 universities), we can map the correlation of the indicators of the three rankings (See Figure 1). In this correlation plot, blue color represents positive correlation, while red color represents negative correlation, the size of the round represents the strength of the correlation. We can see positive correlations among almost all the indicators. Indicators of ARWU ranking are highly inter-related and have strong correlations with "Q_Overall" and "T_research". Some of the indicators have a lower positive correlation with other indicators, for example, "T_income", which may be a significant ingredient in the later cluster analysis. A similar situation can also be observed in the internationalization-related indicators in both QS and THE.



Figure 1. The correlation of indicators of the three rankings

Methodology

Every university is unique, but some features are shared. For example, in Taiwan, public universities always have higher student-teacher ratio than private universities. Different features make universities distinctive in each indicator involved in ranking systems. In order to map the types of universities in global ranking systems and examine the existence of the geographical effect, we collected data from three rankings and used cluster analysis to capture the features of the university group. Among popular clustering algorithms, Gaussian mixture model (GMM; Scrucca et al., 2016) was applied to perform clustering in this work because first, it provides a theoretical adjustment for choosing the number of clusters and second, it allows different weights on different indicators among different clusters.

The original datasets were collected from the official website of each ranking in 2016. After data cleaning, 498 top universities from ARWU, 501 top universities from QS world university rankings,



and 471 top universities from THE world university rankings were selected. These datasets were analyzed by R language (R Core Team, 2019) with mclust package (Scrucca et al, 2016).

Findings

By using GMM, we finally clustered 7 groups in ARWU, 5 groups in QS, and 9 groups in THE. We also found 5 groups for 257 universities that exist simultaneously in all three rankings (see Table 1). Several findings are below:

In ARWU, we could find that Award is a decisive indicator. Universities that got zero scores or not in Award can be obviously separated from those with a higher score into two groups. Since the Nobel Prize is the most famous academic award in the world, it's easy to imagine that the winners of the prize bring in more research resources and networking opportunities for their universities. Group 1 performs best in all indicators and has the most famous universities in the world, such as Harvard University and the University of Cambridge. Group 2 and 3 are both perform great in all indicators, but Group 3 is a bit lower in its Alumni performance with universities such as Duke University and Melbourne University. Group 5 and 6 are similar, but we notice that Group 6 (see Figure 2) has the most Asian universities in Asia have Nobel Prize-winning faculty, both Alumni and Award indicators scored zero in Group 6. Although top universities in Asia produce plenty of publications, the most important indicator in ARWU is still Award. Asian universities, less well-known in the globe, are difficult to compare with those in North America and Europe in ARWU.





Figure 3. Box plot of Group 5 in QS ranking

In QS, Group 1 is a group of best universities in the world, such as Harvard University and National University of Singapore, which have great performance in all indicators. Group 5 (see Figure 3) has the most Asian universities, such as Bandung University of Technology and Renmin University of China, with the feature of score of zero in Academic Reputation and Employer Reputation. As mentioned before, universities in Asia have poor performance in reputation, while European universities may enjoy an advantage from reputation surveys. We can conclude that the low reputation in QS ranking tends to gather Asian universities in one group, even if some universities perform well in academic-related indicators. Group 2, such as National Cheng Kung University (NCKU) and Chulalongkorn University, has the second largest number of Asian universities, but its internationalization is still lower than universities in Group 1.

In THE, again, Group 1 shows the best universities in the world performing excellently in all five indicators. Compared with Group1, Group 2 performs a little bit weaker in each indicator with universities such as the University of Toronto and Peking University. Group 3 and 8 have the most Asian universities, but in general Group 3 performs better than Group 8 and has very good performance in industry income, having universities such as National Cheng Kung University (NCKU) and Nanyang Technological University (NTU). This can be seen as a significant feature of some Asian universities.



However, although GMM divides the 471 universities of THE ranking into nine groups, the features of Group 8 and 9 are quite similar, and the same situation can be found in Group 5 and 6.

Besides, from a perspective of intersectional 257 universities existing simultaneously in these three rankings, we can find 89% of the universities are from Asia in Group 2, while 92% are from Europe in Group 4, and 91% are from America in Group 1 and 5. We examined all 18 indicators from the three rankings and found Group 2 includes universities such as National Taiwan University (NTU), National



Cheng Kung University (NCKU), and Peking University. If we take a close look at the box plot of this group (see Figure 4), we can observe that there are several features of this group: (1) low performance in Award; (2) low performance in internationalization, and (3) high performance in Industry Income. Interestingly, these features can also echo the features of clusters of Asian universities in different rankings.

Figure 4. Box plot of Group 2 in the intersected 257 universities

Tuble 1. Clus	ters of the three	rankings				
Ranking	Group	Asia	Europe	America	Others	Total
	Group 1	18 (36%)	14 (28%)	11 (22%)	7 (14%)	50
	Group 2	16 (40%)	16 (40%)	7 (18%)	1 (2%)	40
	Group 3	3 (4%)	38 (57%)	25 (37%)	1 (1%)	67
AK W U (408)	Group 4	5 (9%)	28 (48%)	20 (34%)	5 (9%)	58
(490)	Group 5	12 (15%)	30 (37%)	34 (42%)	5 (6%)	81
	Group 6	43 (25%)	61 (36%)	53 (31%)	12 (7%)	169
	Group 7	2 (6%)	14 (42%)	17 (52%)	0 (0%)	33
	Group 1	21 (21%)	38 (38%)	30 (30%)	11 (11%)	100
05	Group 2	32 (26%)	49 (40%)	41 (34%)	0 (0%)	122
QS (501)	Group 3	10 (9%)	58 (53%)	21 (19%)	21 (19%)	110
(301)	Group 4	19 (28%)	34 (51%)	14 (21%)	0 (0%)	67
	Group 5	38 (37%)	32 (31%)	29 (28%)	3 (3%)	102
	Group 1	3 (6%)	14 (28%)	33 (66%)	0 (0%)	50
	Group 2	8 (25%)	16 (50%)	4 (12%)	4 (12%)	32
	Group 3	18(26%)	15 (21%)	12 (17%)	4 (6%)	70
THE	Group 4	0 (0%)	17 (29%)	42 (71%)	0 (0%)	59
іпе (47 1)	Group 5	8 (10%)	44 (57%)	11 (14%)	14 (18%)	77
(4/1)	Group 6	2 (3%)	52 (84%)	4 (6%)	4 (6%)	62
	Group 7	13(25%)	27 (52%)	7 (13%)	5 (10%)	52
	Group 8	18(30%)	15 (25%)	12 (20%)	16 (26%)	61
	Group 9	2 (3%)	23 (40%)	31 (53%)	2 (3%)	58

Table 1. Clusters of the three rankings



	Group 1	2(9%)	0(0%)	20(91%)	0(0%)	22
0 11	Group 2	33(89%)	3(8%)	1(3%)	0(0%)	37
(257)	Group 3	0(0%)	37(64%)	0(0%)	21(36%)	58
(237)	Group 4	4(8%)	48(92%)	0(0%)	0(0%)	52
	Group 5	4(5%)	0(0%)	81(92%)	3(3%)	88

Conclusion

First, most of the indicators of the three rankings are positively related. If a university ranked high in one of the three rankings, it can probably be predicted to rank high in other rankings. However, there are still important differences between the three. ARWU focuses more on academic contribution, thus from our grouping result we can see whether a university's faculty won the Nobel Prize; the performance of the university's alumni can greatly influence its ranking result. In addition, the number of papers is also repeatedly calculated in ARWU. In QS and THE, they adopt not only the university's academic contribution, but also the performance regarding teaching and reputation. While QS emphasizes more on reputation survey, THE designs more diverse sub-indicators to present the performances of universities. In addition, we find the internationalization level of a university (measured by the number of international faculty and students) could also be a significant factor that influences the numbers of grouping.

Secondly, by grouping the universities in the three rankings, we can have a new perspective to understand the performances of universities. A common problem for most Asian universities observed in this study is that they are not internationalized enough. This phenomenon is a strong factor that groups most Asian universities together. Intuitively, if a ranking system is objective enough, universities should be grouped together by their similar performances, not by one factor. Although many top universities in Asia have strong academic performance, they still cannot demonstrate this properly in current world rankings due to the limitation of methodologies. And, in fact, we can see some Asian universities that have strong historical or lingual relations with Europe are more easily grouped with European universities in THE and QS rankings and enjoy higher reputation, while most universities in Asia do not have the advantage. Besides, in order to make the grouping more meaningful and useful, further cutting in the number of groups would be imperative, and it will need more literature and research to support the features of each group. The current system of ranking reputation, making reputation a weighted measure in the overall ranking, creates a self-fulfilling prophecy for university ranking, despite differing university goals and served population.

Global competition of higher education is imperative, and global university rankings are the battlegrounds. Currently, we can roughly define which universities can be gathered together by using their similar performances in different rankings. This new method of deciphering rankings can help universities compare themselves with benchmark universities and set goals for the improvement. However, scores can only tell us the surface conditions of a small number of universities in the world. Rethinking their strength and strategies is more important for universities to really improve their education quality and impact on societies. Future research would be needed in providing a detailed calculation method for universities to find efficient approaches to strategically move from their original group to another expected one.

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Courageous Followership Behavior in Academic Organizations: A Structural Model

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ABSTRACT

The recent ASEAN 2015 implementation and the 'free access to education' initiatives of the government placed more pressure on higher education institutions to deliver quality learning. With the corresponding escalating accountabilities, academic leaders are expecting more from their followers. However, evidence from the existing literature points to the fact that limited attention has been accorded followership especially in higher education institutions where many followers are vital players in the delivery of learning (Murji, 2015). This study looked into the dynamics of followers' behavior within the school context. More than two hundred academics participated in the study. Four adapted survey questionnaires, namely the Wong and Law Emotional Intelligence Scale specifically designed for use in organizations; Lindeman & Verkasalo's (2005) Schwartz Value Survey (SSVS), the Self-Leadership Questionnaire (Houghton and Neck, 2002); and the Followership Profile (Dixon, 2003); descriptive statistics and structural equation modeling was used to organize the data gathered. The degree of predictive influence of the independent variables to the dependent variable was established to come up with a best-fit model for courageous followership behaviors, and infer implications. The result of the study adds to the growing literature of followership by providing a new dimension to the phenomenon of followership within another cultural setting.

Keywords: Courageous Followership Behavior, Individual Basic Values, Self-Leadership Strategies





Introduction

Quality is the lever that moves organizations towards excellence, but its attainment does not rest alone on the shoulders of its leaders. Present academic administrators are pressured as they are enjoined by the government to work with other educational stakeholders to develop human capital through quality initiatives (CHED Strategic Plan 2016-2020). For example, the recent ASEAN 2015 implementation and the 'free access to education' initiatives of the government placed more pressure on higher education institutions to deliver quality learning. Clearly it is a task not only for the leaders but a collective effort by all members and across all levels of the organization. In addition, the challenges of a more decentralized and 'flattened' institutional structure require the leaders and other followers to assume larger institutional roles (Smith, 2009).

With the corresponding escalating accountabilities, academic leaders are expecting more from their followers. To this end, the individual work outputs are very significant. However, within the hierarchical structure of the higher education institutions in the Philippines, many individuals find themselves more often a follower than a leader (Nicolet, 2014).

In fact, evidence from the existing literature points to the limited attention that has been accorded followership especially in higher education institutions where many followers are vital players in the delivery of learning (Murji, 2015). Obviously, there is a need to understand followers' roles and relationships with leaders and with other followers within the school context. Knowing what makes followers follow (Cruickshank, 2017) and 'how' and 'why' they follow is seen to help design environments and situations that will attract, accommodate and retain effective followers that ultimately re-downs to a successful organization (Francis, 2015).

Followers have been present as long as leaders have existed (Ye, 2008). In fact, the results leaders get are through the execution of their wishes by the followers (McClure, 2009). It has been pointed out that leaders contribute a maximum of twenty percent only compared to the followers' contribution of eighty percent to organizational success (Wel, 2015). This goes without saying that the effectiveness of leaders is to a great extent dependent on the quality of the followers.

Kellerman (2008) emphasized that what followers do and do not do is not dependent on their leaders, but it is also a reaction to a range of different stimuli. Recent events in the global environment like the major corporate scandals and acts of terrorism sparked by leaders and blindly obeyed by followers have roused the interest of cultivating good followership. These developments have also awakened followers to be more vigilant and not be passive in their roles, but followers with leader-like abilities (Baker, Mathis and Stites-Doe, 2011) that can influence organizational change and effectiveness.

With the many reforms of the Philippine educational system, the leader-follower dynamics of higher education institutions in the Philippines warrants closer scrutiny. As the academic community immersed itself in globalization given the trends that 21st-century learning requires, it is vital to understand the Filipino follower. This study aimed to understand the Filipino follower within the country's higher education institutions. The study attempted to determine a best-fit-model to determine which among the two variables exert the most influence towards courageous followership behaviors. It looked at the factors that influence his decision to follow or not to follow leaders. The result of the study adds to the growing literature of followership by providing a new dimension to the phenomenon of followership within another cultural setting.

Framework

The assumptions of this study are supported by the following: the courageous followership model by Chaleff (2009), the theory of values by Schwartz (1992), the concept of self-leadership by Manz (1986) and the emotional intelligence competencies model by Goleman (1998). This study found it timely and relevant to focus on followership behaviors because exemplary followership behaviors have been attributed to impact organizational processes and quality organizational outcomes. The followership



model of Ira Chaleff (2009) rests on the platform of the courageous relationship between followers and leaders who circle a common purpose. He propositioned that exemplary followers exhibit the courage to do what is necessary including standing up for one's own belief especially if it is conflicting with the views of others. Chaleff (2009) identified five dimensions in which a follower exhibits courageous followership: one, courage ---- to assume responsibility which is the display of dedication, commitment, initiative, self-management and responsibility to work; two, to serve ---- referring to the degree of support to the supervisor; three, to challenge ---- or confronting inappropriate behavior from others including the supervisor; four, to participate in transformation ---- a demonstration of support to change; and five, to take moral action ---- the assumption of responsibility for negative repercussions of one's action and not compromising personal ethics. These are the constructs of followership behaviour measured in the study.

Studies have identified follower behaviors such as self-managing, pro-activity, team-mindedness and professionalism (Francis, 2015). Also, factors such as transparency and honesty in the organization, trust, and integrity in leadership and organization are also perceived to affect followership (Hawkins 2017). These are characteristics that exemplify the values of individuals which lead to the interest of individual basic values as another variable in this study.

The theory of values by Schwartz (1992) postulates that at a more basic level, values form a continuum of related motivations which gives rise to the circular structure of ten motivationally distinct types of values that are either congruent or in conflict with each other (Schwartz, 2012). The first dimension opposes self-enhancement with self-transcendence. The second dimension is the openness to change of values as opposed to conservation (Mateju *et al.*, 2016).

The expression of values underlies human aspirations. Self-leading knowledge workers, for example, are assumed to be guided by their internal work ideals (Stewart et al, 2011). Many individuals in organizations are actively working toward becoming leaders (Neck, Manz, and Houghton, 2017). Drucker (1999, in dela Posta, 2016) has suggested that the ability to motivate 'self' is important. These acts require an understanding and knowledge of self because leading necessitates one to lead one's self first (Holroyd, 2015).

The concept of self-leadership by Charles Manz (1986) is the notion that understanding as much about oneself makes one know and appreciate others better (Holroyd, 2015). Self-leadership aims to increase personal effectiveness with the improvement of performance (Houghton *et al.*, 2012). Self-leadership includes three distinct but complementary sets of strategies. These are the constructs used to measure self-leadership --- behavior-focused which intends to increase self-awareness to manage behaviors involving unpleasant tasks; natural reward which focuses attention on the positive perceptions and experiences that are realized from a given task or activity and constructive thought patterns which deal (s) with the creation or alteration of cognitive thought processes to positively impact performance (Manz, 2015).

Meanwhile, emotional characteristics were ranked second among the significant variables contributing to followership of teachers in Thailand (Ye, 2008) which led to the interest in emotional intelligence competencies as another variable in this study. The emotional intelligence competencies model developed by Daniel Goleman (1998) suggests two vital divisions of personal competences and social competencies and relates it to the recognition and regulation of said competencies. The model based on the premise that emotional intelligence provides the bedrock for competencies that are predictors of job performance. The competency framework consists of four clusters: self-awareness, self-management, social awareness, and relationship management. Given the discussion, the proposition is presented:

Hypothesis: Courageous followership behavior is the effect of self-leadership strategies, individual basic values, and emotional intelligence.



Methodology

The study used the quantitative descriptive employing a causal-comparative design to identify causes or consequences between the variables. Also known as *ex-post facto* design, causal-comparative research is a non-experimental method of investigating a cause-effect relationship after an action or event has already occurred (Salkind, 2010). Four survey questionnaires were adapted and revised to suit the needs of the study, namely, the Wong and Law Emotional Intelligence Scale specifically designed for use in organizations, the Short Schwartz Value Survey, an adaptation of Lindeman & Verkasalo's (2005) published English version of the Schwartz Value Survey (SSVS), the Self-Leadership Questionnaire, a self-assessment scale to measure employment of self-leadership strategies adapted and revised from Houghton and Neck (2002); and the Followership Profile, developed by Dixon (2003) to measure Chaleff's (1995) five behavioral categories. The instruments were content validated by experts and tested and showed a Cronbach's alpha of 0.720 for individual basic values, 0.815 for self-leadership strategies, and 0.799 for followership behaviors.

Applying Cochran's (1963) equation, a total of 270 academic employees were randomly selected. The respondents come from a public and two private academic institutions in Bukidnon and included those employees who held regular, casual, temporary, job order or contractual positions within their respective academic organizations. Descriptive statistics and structural equation modeling were applied to determine the extent to which the hypothesized model is consistent with the data gathered and to come up with a best-fit model for courageous followership behaviors, and infer implications.

Results and Discussion

Individual Basic Values. Schwartz (2012) described values as varying in importance that serves as a guiding principle in life. He further stated the pursuit of one value may result in a conflict with other values but congruence with another (Schwartz, 2012). Schwartz (2012) described values as varying in importance that serves as a guiding principle in life. He further stated the pursuit of one value may result in a conflict with other values but congruence with another (Schwartz, 2012).

Data from Table 1 show (s) that for the opposing higher order values self-transcendence and self-enhancement, the higher mean is self-transcendence (M=3.59, SD=.507) and for the opposing higher values openness to change and conservation, the higher mean is conservation (M=3.67, SD=.477).

			16)	
Individual Basic Va	lues	Mean	SD	Description
Self-transcendence		3.59	0.507	The value strongly guides the principle in life
Self-enhancer	ment	2.76	0.589	The value moderately guides the principle in
				life
Openness	to	3.29	0.550	The value moderately guides the principle in
Change				life
Conservation		3.67	0.477	The value strongly guides the principle in life

Table 1. Mean Summary of the Individual Basic Values of the Respondents

The influence of self-transcendence as opposed to self-enhancement, could be attributed to the roles of academic employees in the facilitation of learning because in academic organizations, the measure of success is the production of quality of learners and not monetary profit. Putting the welfare of the learners, or transcending selfish concerns is a trait observable between academic faculty and the students. These findings are supported by Schwartz's theory that suggests that there is an association between the dominance of personal values and occupation. The respondents of this study are mostly in social occupations which have been found to give more importance to the values benevolence than to power and achievement (Grant, 2017).



The higher order value conservation was perceived to guide the principle in life more than the value openness to change implying that academic employees' Filipino culture still strongly influences their values. The results are also attributable to generational factors among the respondents which were corroborated by the study of Bowman (2010) where traditionalists and baby boomers were found to be more motivated by the value conservation. Currently, the majority of employees within organizations belong to these two groups.

The findings that values also influence followership behaviors but in differing degrees were also corroborated by statements from key informants:

"For me, my values are very important because it would affect your work."

"You have to value patience, commitment, and dedication in your work."

"In my work since I am dealing with financial matters, you should be honest and have integrity."

"Basic values are important like respect, patience, tolerance especially of you are irritated, but you need to tolerate it."

"For me, change is more important, as I am not a very traditional person."

Assessment of Self-Leadership Strategies. The overall mean of the academic employees' assessment of their use of the self-leadership strategies shows that generally, the 'self-leadership strategy is used some of the time.' A closer look at the data in Table 2 reveals that of the three self-leadership strategies, the highest mean is natural rewards (M=3.16, SD=.626), followed by constructive thought patterns (M=3.14, SD=.606), and behavior-focused strategy (M=3.06, SD=.518).

Table 2. Mean Summary of the Respondents' Assessment of their Self-Leadership Strategies

Self-leadership Strategies	Mean	SD	Description
Behavior-focused	3.06	0.518	Self-leadership strategy is used some of the time
Natural Rewards	3.16	0.626	Self-leadership strategy is used some of the time
Constructive Thought Patterns	3.14	0.606	Self-leadership strategy is used some of the time
Overall mean	3.12	.432	Self-leadership strategy is used some of the time

The results indicated that academic employees do not always use the self-leadership strategies in the performance of their tasks. The reason may be because the job they are performing is not 'unpleasant' and the performance does not necessitate the application of self-leadership strategies, or that the employees' individual traits assure performance without the need to self-motivate.

The study of Mutalib (2013) where individual characteristics of conscientiousness, extraversion, and affective commitment were found to predict self-leadership, reinforces the results of this study. Moreover, the results also establish that situational factors such as a perceived stressful environment moderates the relationship between the mentioned individual characteristics.

The performance of many academic tasks requires from the employees the use of motivating strategies. These are confirmed by some of the statements from key informants.

"I just perform the tasks even if I do not like it. I would first take a break such as go out with my friends. I would secure information about the task so that I will learn to appreciate it."

"I practice self-discipline to perform my task no matter what. I utilize my own time to work the task to finish it. I just eat food and listen to music while working."

"I have performed unpleasant tasks many times already. I just don't think about it, rather I just work on it in order to finish it."

"I also look forward to sleeping after the work is done."

Manifestation of Courageous Followership Behavior. The data from Table 3 displays that in general, the respondents' courageous followership behaviors *is moderately manifested* as shown by the mean (M=3.20, SD=.405). The data show that the dimension of courage to assume responsibility reflects the highest mean (M=3.43, SD=.526) and the dimension courage to challenge reflects the lowest mean (M=2.92, SD=.668).



Followership behaviors	Mean	SD	Description
Courage to Assume Responsibility	3.43	.526	Moderately manifested
Courage to Serve	3.14	.581	Moderately manifested
Courage to Participate in Transformation	3.22	.599	Moderately manifested
Courage to Challenge	2.92	.668	Moderately manifested
Courage to Take Moral Action	3.04	.599	Moderately manifested
Overall Mean	3.20	.405	Moderately manifested

Table 3. Mean Summary of the Respondents' Followership Behaviors

The overall findings reflect the professionalism that is inherent in academic employees and imply that responsibility is taken seriously among the different ranks. In academic professions, it is second nature to be responsible. Findings find support in the study of Ye (2008) where the number one significant variable that contributed to followership is professionalism.

The courage to challenge is the lowest mean which maybe because they find no reason to challenge their leaders. This implied trust in the leadership found support in the study of Hawkins (2017). Accordingly, trust and integrity in leadership were perceived to affect followership. Hawkins's findings revealed that leaders who value and acknowledge the contributions of the followers produce effective followers. Antelo, Prilipko & Pereira (2010) also confirmed that leaders need to understand how to develop individual traits to nurture and form exemplary followers.

Some statements from key informants of the study validated the data:

"My leaders are my superior and, they are the authority over me. It is their task to oversee us in our work so, we have to respect them."

"I show that I am willing to serve my leaders even if they are difficult to follow by exercising patience."

"If ever there are things that I am made to do that I am against, I will talk with my supervisor."

"I will not do anything that will compromise my principles and will find ways to do what is right."

Perceived Level of Emotional Intelligence Competencies. Table 4 presents the perceived emotional intelligence competencies of the respondents.

Table 4. Mean Summary of Perceived Emotional Intelligence Competencies							
Emotional Intelligence Competencies	Mean	SD	Description				
Self-awareness	3.43	.540	Moderately High				
Self-management	3.22	.527	Moderately High				
Social awareness	3.39	.504	Moderately High				
Relationship Management	3.36	.485	Moderately High				
Overall Mean	3.36	.350	Moderately High				

From Table 4, the general perception of the academic employees of their emotional intelligence competency level is *moderately high* (M = 3.43, SD = .540). The result indicates that the academic employees see themselves having an average level of competency. Among the competencies, the highest mean is *self-awareness* (M=3.43, SD=.350) which is the ability to understand one's mood drives and the effect of these emotions to others, which imply that the academic employees are aware of their crucial roles in shaping the minds of younger generations. The study of Gryn (2010) have pointed out that delivering quality performance also requires a deeper emotional involvement supporting that the challenge of teaching requires employment of emotional intelligence competencies. In addition, the study of Atiq et al. (2015) showed that emotional intelligence positively impacts motivation, a significant tool for the achievement of organizational goals. Key informant interviews revealed that the academic employees are aware of the importance of emotional intelligence competencies as shown in the sample statements:



"You need to understand your own emotion first before you can understand others."

"I handle pressure and crisis by being professional in my work. It is important to manage my own emotions first so that I can manage other's emotions."

"I think it is important to have

Structural Model of Courageous Followership Behaviors. Structural equation modeling (SEM) guides many researchers across disciplines. It is considered a 'must' for those in the social sciences (Hooper, Coughlan & Mullen, 2008). There are four latent variables in this study courageous followership behavior, is the endogenous variable; while: emotional intelligence, individual basic values, and self-leadership strategies are the exogenous variables.

Evaluation of the fitness made use of at least one of the three categories as recommended by Hair, et al. (1995, 2006) and Holmes-Smith (2006) namely absolute fit, incremental fit, and parsimonious fit. According to the criteria, for absolute fit category, the root mean square residual (RMSEA) should be < 0.05; the goodness of fit index (GFI) should be > 0.90. For the incremental fit category, the comparative fit index (CFI), normed fit index (NFI), and Tucker-Lewis index (TLI) should be > .90; The Parsimonious fit calculation should be < .30.

The hypothesized model proposed that courageous followership behavior is the effect of individual basic values, emotional intelligence and self-leadership strategies. The resulting indices presented in Table 4 shows that the hypothesized model passed all the criteria for acceptability and is also the best fit model using the seven criteria for goodness-of-fit. The hypothesized model fit well with the observed data. The figure further shows the structural model with path coefficients generated through structural equation modeling.

Catazzalian		Absolute Fit		Inc	remental	Fit	Parsimonious Fit
Categories	RMR	RMSEA	GFI	CFI	NFI	TLI	Chisq/df
Hypothesized Model	.011	.050	.928	.963	.914	.955	163.47/98=1.66
Standard Fit Criterion	Nearing Zero	<.05	> .90	>.90	>.90	>.90	X^2 to df < 3.0
	2					<u>5</u>	-
1							
e4 Self-awarene 28 e3 Self-managen e2 Social Awarene e1 Relationship Managen	45 70 45 70 45 70 45 87 70 45 87 84 85 70 45 87 84 84 84 84 84 84 84 84 84 84	Emotional Intelligence Competencies	18 38 70 dership 82	Behavior-focuse Natural newards	.49 d • (e9)	
e8 Self-transceder	21 ce .46 .13 ent .46	29	.70	S Constructive thought p	.62 atterns e11)	.41
e6 Openness to Cha	.45 .67 nge .42 .65	Values			.47 Followership	84 Co	rage to savume .75 urage to serve .66 rage to participate .60 .614

Table 5. Standard of Fit Indices and Standard Values for Hypothesized Model

Figure 1. Illustration of Hypothesized Model: Best Fit Model



rage to take moral a

[&]quot;It will affect my performance if I think about my emotions."

The structural model result in Figure 2 shows the achieved stable model fit estimation where the indicators of fit: Cmin/df = 1.66 (Cmin = 163.47, df = 98); GFI = 0.928; NFI = 0.914; CFI = 0.963; RMSEA = 0.05. This is the best fit model confirming that *individual basic values, emotional intelligence* and self-leadership strategies cause the manifestation of courageous followership behaviors. With the squared multiple correlation of $(R^2=.47)$, this means that 47% of the followership behavior is explained by self-leadership strategies, given the regression coefficient of ($\beta = .69$, p=000). Figure 1 also empirically shows that the multiple correlation of Self-Leadership Strategies (R²=.38) implies that 38% of self-leadership is influenced by emotional intelligence and individual basic values. This study theorized that self-leadership may mediate the relationship among said variables. The generated hypothesized model confirmed the assumption that self-leadership strategies directly caused the manifestation of courageous followership behaviors among academics. It is observable from the figure that self-leadership strategies is both a cause and an effect variable. Mutalib (2015) have reported that an individual's propensity to practice self-leadership can make a difference in the way individuals behave. He further added that situational factors, such as stressful environments are among the factors that affect the tendency to use self-leadership among individuals. In addition, Sesen, Tabak, & Arli (2017) find that self-leadership had significant effects to innovative behaviors of teachers. Friends (2013) have presented that self-leadership was instrumental in the extraordinary achievements of individuals.

Figure 1 also shows that the variable *individual basic values* do not contribute directly to the courageous followership behavior of the academic employees (β =.49), which means that the individual basic values do not directly affect followership behaviors. A multiple correlation of R²=.24 means that 24% of *self-leadership strategies* is explained by individual basic values. This may support the expressed concern of many researchers that the link between values and behaviors may not be as firm as theorized (Hackett, 2010). As such, the generated hypothesized model confirmed the assumptions of this study that self-leadership strategies mediate the relationship of emotional intelligence competencies and individual basic values to followership behaviors.

The findings of this study can serve as bases to intensify personal development initiatives among academics. These findings are also confirmed by the study of Ye (2008) which disclosed that followership behaviors are affected not only by external factors such as leadership styles, but also by internal factors such as professionalism, emotional intelligence, and teamwork attitudes. Hawkins (2017) reported that among the important factors affecting followership is the followers' attitude itself. This implies that providing personal development to academic employees including the leaders will lead to the development of followership behaviors.

Conclusions and Recommendations

Followership behavior is important to any organization as it is attributed to impact organizational processes and quality organizational outcomes. Nonetheless, situations where employees possess strong self-leadership skills, allow for the realization of courageous followership behaviors, implying the significance of understanding much about oneself to know and appreciate others better. However, self-leadership is influenced by individual basic values which suggests that strengthening individual basic values among academic employees will result in higher self-leadership capacity. Also, the impact of self-leadership to followership behaviors as shown by the structural model put forward the argument of the need to develop self-leadership strategies to enhance and cultivate courageous followership behaviors among the employees within academic organizations. Much room to desire for healthy work environment with positive relational spaces regardless of designation, rank, or position in the workplace.

The study has implications for the academic institutions on the need to embed in their curricula followership behavior development education alongside leadership development trainings for the learners to develop a deeper appreciation of the roles that followers play within organizations. Academic employees, especially those without supervisory roles, need to recast how they see themselves as a follower in order to enact followership behaviors that contribute to a quality and effective performance. They need to understand that they are partners of the leaders and not ordinary subordinates who simply obey the commands of their supervisors or leaders. For the academic employees entrusted to supervise



or with leadership roles, they need to understand that they are also followers in some instances and are also obliged to enact good followership behaviors.

Intervention programs designed to develop a deeper understanding of followership roles and the factors that influence courageous behaviors among the employees, the human resource department may regularly assess the followership-leadership relations and closely monitor the quality of such relationships so that timely mediation may be applied as needed.

For wider implications of followership behaviors, future studies may be conducted among top and middle level management from other types of organizations. This may lead to additional information into the factors that cause or influence the manifestation of courageous exemplary followership behaviors within organizations not only among the followers but also among the leaders.

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SEAAIR2019 THEME 4.

Curricular Dimensions and Possibilities: Innovations, Authentic

Assessments and Performance Evaluation

19th	South East Asian Association for Institutional Research Annual Conference
Theme	Transforming Intelligence Into Action in IR
Sub-Theme	Advanced Technology and IR Application: Social Networks, Data Warehousing and Data Collection Institutional Golemance: Enrollment, Social Mobility and Higher Education Accountability Curricular Dimensions and Possibilities: Innovations, Authentic Assessments and Performance Evaluation



Ignatian Pedagogical Paradigm: Innovations in Teaching Entrepreneurship

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ABSTRACT

The entry of the new tertiary curriculum for Business Administration after the implementation of K-12 in the Philippine educational system, warrants that the tertiary level elevates the content, delivery and strategies of its courses. The paper aimed is to determine the breadth of usage of the Ignatian Pedagogical Paradigm in the current Entrepreneurial courses in a school of business and management. It utilized mixed method approach that included data from a survey questionnaire, minutes from stakeholders' meetings and student conversations. The results showed that an average of 47 percent of the students strongly agree that the elements oof Ignatian Pedagogical Paradigm are evident in the entreprenueurship courses with reflection as the most dominant element and context as the least utilized among the five. The research hoped to to come up with an innovative entrepreneurship courses that effectively integrates the Ignatian Pedagogical Paradigm and to strengthen the integration of relevant its use in the varying topics of the institutional faculty development program.

Keywords: Entrepreneurship, Ignatian Pedagogical Paradigm, Entrepreneurial Journey





Introduction

History was made in the Philippine educational landscape when in 2013 President Benigno C Aquino III signed into law RA 10533 which is an act enhancing the Philippine basic education by strengthening its currciulum and increasing the number of years for basic education- it added two years in high school labeled as senior high school. (officialgazette.gov.ph, 2013; Manila Times 2013; Philippines news, 2013) The changes become a necessity for Philippines to align its educational system with the world (Okabe as cited by Valenzuela, 2018). Nonetheless, the said change brought ripple effects in the tertiary education. The Philippine Commission on Higher Education in its webite article "Transition in Higher Education" states that the new K+12 curriculum consequently impacts higher education in its curriculum and manpower. Further, it is imperative for higher education institution to consciously innovate or re-engineer its curriculum to significantly promote higher-order critical thinking skills and the competencies now valued in higher education, (Camba, 2016; Rivera, 2011)).

Thew said educational changes instigated a preliminary review of a Jesuit instition's business and entrepreneurship courses. It was found out that most of the first and second year tertiary courses are now offered in the Accounting Business Management track of the Senor high school. This finding prompted a conscious departmental effort to innovate the current tertiary entrepreneurship offering. To come up with a better understanding of the current institutional situations, additional data include: First, the entrepreneurship courses are embedded in the BS Business Administration curriculum as mandatory 9-unit institutional courses. It is ladderized that begins with business plan preparation to business implementation I and II. (SBM Bulletin of Information, 2018, 2015). Second, there is an institutional student enterpreneurship center (SEC) that assists the business administration unit for the incubation of student business projects. The center simulates a mall experience in the implementation of the student businesses and also offers training platforms for student-clientele. Most importantly, the school is a Jesuit run university. Essential to Jesuit education is the Ignatian formation process popularly known as the Ignatian Pedagogical Paradigm (IPP). This process emphasizes five dynamics: context, experience, reflection, action and evalaution - CERAE. (O Connor and Myers, 2018; INSET Training Hand-outs, 2015). Also, this paradigm applies to all curricula. It does not demand the addition of a single course, rather, requires the infusion of new approaches in the way educators teach existing courses (Duminuco, 2000). The IPP is a way of proceeding for most Jesuit institution. Therefore, this detemines the current usage of IPP in entrepreneurship courses with the intent to deepen the entrepreneurial journey of the tertiary students using the new curricilum with the goal to produce more insightful and impactful entrepreneurs" (Degen, 2012)

Statement of the Problem

This study determined the breadth of usage of the Ignatian Pedagogical Paradigm in the current entrepreneurial courses in a school of business and management. It likewise attempted to establish an innovative entrepreneurship courses.

Framework

The research revolves around the Ignatian pedagogial paradigm. The word "Ignatian" comes from "Ignatius Loyola" the founder of the Society of Jesus. The Society of Jesus has established several schools since 1524. (In Service Training notes, 2015; VanHise and Massey, 2010). The Ignatian Pedagogical Paradigm (IPP) is a practical teaching framework which is consistent with the Ignatian values and world view. Faculty, regardless of discipline, can utilize this approach so that their teaching is academically sound and has practical meaning and application for the classroom. It can be applied to all curricula and students of all ages and backgrounds (Duminuco, 2000). It is a learning process that emphasizes five steps: context, experience, reflection, action and evaluation. It is contemplative action in practice and a significant differentiator in methodology (O Connor and Myers, 2018).



Several researches have been conducted that utilized the Ignatian Pedagogical Paradigm in the enhancement of various courses : Ignatian Values in Business and Accoutning Education (O' Connor and Myers, 2018); Ignatian Pedagogy for Social Entreprenuership (Warner, Lieberman and Roussosos, 2016); Ignatian Pedagogy in the Stategy Classroom (Mauri, Figueiredo and Rashford, SJ, 2015); Honesty and Ethics in Business (VanHise, Koeplin and Whitty, 2013) and Applying the Igantian Pedagogical Paradigm to the creation of an Accoutning Ethics Course (VanHise and Massey, 2010).

CERAE as Ignatian Pedagogy Paradigm

In 1986 the International Commission on Apostolate of Jesuit Education (ICAJE) published *The Characteristics of Jesuit Education*. This document took a broad scope that efforts to make those characteristics more accessible and practicable for teachers in the classroom led to the publication of Ignatian *Pedagogy: A Practical Approach*. This document introduces and discusses the "Ignatian pedagogical paradigm" – a paradigm quite explicitly linked to the Spiritual Exercises (Mountin and Nowacek, 2012).

A distinctive feature of the Ignatian pedagogical paradigm is that, understood in the light of the Spiritual Exercises of St. Ignatius, it becomes not only a fitting description of the continual interplay of experience, reflection and action in the teaching learning process, but also an ideal portrayal of the dynamic interrelationship of the teacher and learner and the latter's journey of growth in knowledge and freedom. (ICAJE, 1993)

The elements of Jesuit education embrace Ignatian pedagogy as its heart of teaching and learning. According to the Jesuit Secondary Education Association (1993), the continual interplay of context, experience, reflection, action and evaluation provides the educators with a pedagogical model that is relevant to the cultures and times. It consistently maintains the importance and integrity of the interrelationship of teacher, learner and subject matter within the real context in which they live. It is comprehensive and complete in its approach. Most importantly, it addresses the realities as well as ideals of teaching in practical and systematic ways while, at the same time, offers the radical means they need to meet their educational mission of forming young men and women for others. Father Pedro Arrupe, who was then Superior General of the Society of Jesus, spoke at the closing session of the 400th anniversary of the "Ratio Studiorum" on December 8, 1986 in Rome and reaffirmed the conclusion of the meeting:

"...But if it is an authentic Jesuit school- that is to say if our operation of the school flows out of the strengths drawn from our own specific charisma, if we emphasize our essential characteristics and our basic options- then the education which our students receive should give them a certain "Ignacianidad", if I can use such term...Our responsibility is to provide, through our schools, what we believe God and the church ask of us."

A discussion of the elements include: *Context* or "personal care and concern for the individual, which is a hallmark of Jesuit education, requires that the teacher become as conversant as possible with the life experience of the learner" - teacher learn about the students' lives - context is to adapt the content and delivery of lessons to reflect the conditions of the students' lives. According to Mountin and Nowacek (2012), "context" has two dimensions. First, it talks about the student's personal life situation, who he or she is coming into the classroom. Second, is a larger context that surrounds the student: classroom, institution, local, national, and global issues. Additionally, the authors highlighted that the ultimate aim of this pedagogy is to help students move beyond a preoccupation with individual context and become responsive to larger social contexts and to the needs of others.

Experience for St. Ignatius meant "to taste something internally" - "instructional activities involving students in doing things and thinking about what they are doing." In addition, discussion of cases in which significant uncertainty is present is also warranted. According to Fr. Duminuco, of the Society of Jesus (2000), when engaging in the experience process, the task of the teacher is to impart conditions whereby students gather and recollect the material of their own experience in order to extract what they


understand already in terms of facts, feelings, values, insights and intuitions they bring to the subject matter at hand. Later the teacher guides the students in assimilating new information and further experience so that their knowledge will grow in completeness and truth. For some teachers, "experience" might be portrayed through activities beyond the four corners of the classroom such as: community service, service-learning, on the job trainings, field trips, doing research in the science laboratories, encoding in the computer labs, or even brainstorming in the libraries. Kolvenbach (Drost, 2001) states that St. Ignatius does encourage use of the imagination, feeling, and mind in experience which involves the affective and cognitive dimensions of the person. In all these cases, however, experience dwells in the student's encounter with people, places, events, and texts that stretch them past their prior knowledge and experiences (Mountin and Nowacek, 2012).

Reflection as "a thoughtful reconsideration of some subject matter, experience, idea, purpose or spontaneous reaction, in order to grasp its significance more fully". Reflection is the key element that distinguishes Ignatian pedagogy from more traditional learning models. This reflection is a formative and liberating process shapes the consciousness of students --their habitual attitudes, values and beliefs as well as ways of thinking-- that they are impelled to move beyond knowing; to undertake action (Pranoto, 2014). The teacher lays the foundations for learning how to learn by engaging students in skills and techniques of reflection. Memory, understanding, imagination and feelings are used to grasp the essential meaning and value of what is being studied, to discover its relationship to other facets of human knowledge and activity, and to appreciate its implications in the continuing search for truth.

Action is the desired outcome of the learning experience. Action refers to the students' internalization of beliefs which, in turn, drive them to act in a manner consistent with those beliefs (Duminuco, 2000). It is then the role of the teacher to see that the opportunities provided will challenge the imagination and exercise the will of the students to choose the best possible course of action to flow from and follow up on what they have learned. What they do as a result under the teacher's direction, while it may not immediately transform the world into a global community of justice, peace and love, should at least be an educational step in that direction and toward that goal even if it merely leads to new experiences, further reflections and consequent actions within the subject area under consideration (Korth, 2008).

Evaluation in addition to evaluating students' proficiency in the subject area, the teacher should also be attuned to the students' moral growth and maturation. According to Korth (2008), daily quizzes, weekly or monthly tests and semester examinations are familiar instruments to assess the degree of mastery of knowledge and skills achieved. Ignatian pedagogy, however, aims at evaluation which includes but goes beyond academic mastery to the learners' well-rounded growth as persons for others. Observant teachers will perceive indications of growth or lack of growth in class discussions and students' generosity in response to common needs much more frequently. The relationship of the five elements of CERAE is depicted below:



Source: Navlor S.J. in Mauri, Figueiredo and Rashford, SJ, 2015

Figure 1. Components of Ignatian Pedagogical Paradigm



The continual interplay of experience, reflection and action in the teaching-learning dynamics of the classroom lies at the heart of an Ignatian pedagogy. This set of ignatian diferentiators is essential in the formation process that prepare students to recognize who they are, what they value, and how to use their strengths in any situation; provide a compass that enables students to adapt to unknown situations because they know that they value and what they want to ahieve; equip students with critical thinking skills to discern what needs to be done regardless of their role in the organization and encourages self understanding, self management and a lifetime of evolution through discovery (McCallum & Horian in O Connor and Myers, 2018). Further, it is crucial for business courses to have an Ignatian influence. Instilling the values that transcend money and success, rather, individuals with full and deeper formation that calls for magis or excellence (Ignatian Pedagogy, 2014); who are concerned about society and the world; leaders who will be charitable, altruistic and "men and women for others" (Wood, 2016).

Methodology

The study utilized the mixed method approach. It used data from a survey questionnaire, minutes from stakeholders' meetings, faculty interviews and student conversations. One hundred eighteen (118) fourth year tertiary students of SY 2018-19 assessed the breadth of IPP in entrepreneurship courses using a survey questionnaire. The instrument has cronbach alpha of 0.90. The survey was supplemented by the minutes of student conversations (n=118) and of the stakeholders meetings (n=81) for the last 2 years (2017-2018). The stakeholders' meeting is a gathering of both internal and external stakeholders of the college which inluded: local entrepreneurs, industry practioners, private and public employees, alumni, officers of parent-teachers association of the college, faculty and student leaders.

Results and Discussion

The discussion on the breadth of usage of CERAE is presented below. Figure 2 shows the use of the elements of IPP (CERAE) in entrepreneurship courses.



Figure 2. Summary of the Survey Results

Context involves two dimensions : the student's personal life situation, and the larger context that includes the classroom, institution, local, national, and global issues (Mountin and Nowacek, 2012). Figure 2 shows that 67 percent of the students agree and 32 percent strongly agree that they come to an entreprenuership class with "the proper mindset for entrepreneurship" and with "some prior the "curriculum is formal" which is taught by entrepeneurial experiences". Likewise, that "competent faculty" that further "provided the students with sufficient entrepreneurial activities" and "personal care". The currciulum and faculty are also supplemented by "appropriate school facilities". Nonetheless, there were two items of concern brought about by the survey and the stakeholders' meeting. The survey showed that a few students do not agree that the "entrepreneurial courses are interdisciplinay in nature". This resut is validated in the student conversations where they expressed the need for *additional subjects* that promote overall growth. Also, the discussions with stakeholders (2018) for the improvement of the delivery of entrepreneurship courses revealed that the department might have lacked in grounding well the students with experiential activities in the early stages of their entrepreneurial journey. It was suggested then that exposure to local, national and international entrepreneurs- their stories, struggles and contributions to the society- be included in the discourse. Furthermore, to provide students with opportunities to market their ideas to entrepreneurs who are experts in similar industry. Also, to grant excellently performing students with recognition and financial assistance to jump-start their own enterprise which could further motivate or validate them.

Experience. Here, the task of the teacher is to use "instructional activities that involve students in doing things and thinking about what they are doing". 52 percent of the students indicated strongly agree that the "teachers created an atmosphere that enabled them to gather their feelings, values, and insights in every activity". These are activities that "they enjoy" and that gave them "sufficient experiences related to entrepreneurship" thereby "giving them the proper entrepreneurial mindset" and the avenue to "enhance their critical thinking skills". Although the statements were rated high yet student conversations surprisingly revealed that they needed supplementary entrepreneurial activities that would deepen their appreciation and growth as 'businessmen'. This can also be alluded to previous discussion on the need for a more macro and interdisciplinary point of view in entrepreneurship. Part of the teacher's role in synthesizing subject matters is to bring further the experiences so that students knowledge will grow in completeness and in truth (Kovenbach in Drost, 2001; Duminico, 2000).

Reflection is the fundamental key to the paradigm which makes the student learn from their experience and obtains meaning from that experience. This distinguishes the Ignatian pedagogy from other models (Pronto, 2014). Students comprising 97 percent recognized the value of entrepreneurship courses not only "to their college degree" but also "to their personal growth", in "assisting the community" and in "discovering realities or truths about life." This realization beyond the self is a trademark of the pedagogy. Emphasis is placed on conscience where it acts as a prompt for learners to take action that significantly affects others. These findings are also supported by the results of student conversations. It was highlighted that the entrepreneurial experiences were meaningful. The implementation of the business coupled with some reflection exercises, activities that simulate the corporate social responsibilities proved to be challenging but such exposure enabled sudents to see the realities of entrepreneurship thereby making them better persons.

Action. 42 percent of the students strongly agree while 54 percent agree that they were afforded "challenging opportunities that gave them the chance in choosing the best action". Examples of the avenues for action were: "coming up with valuable proposal", "launching and operating one's business" thereby giving students the means to "practie their enterepreneurial skills" and also somehow "contribute to the community". Action, in the Ignatian paradigm, is the students' internalization of their beliefs which, in turn, drive them to act in a manner consistent with those beliefs (Korth, 2008). The challenge now among administrators and teachers is whether to integrate service learning program within the entreprenuership courses in order to make "action" as an element more vivid.

Evaluation. During their entrepreneurship journey, 54 percent of the students strongly agree that the teacher has provided them opportunities to challenge them to decide: *"for best possible action"*, *"for well rounded development"*, *"for deep insight on accountability, responsibility, purpose and*



contribution of entrepreneurs to the community". Evaluation, in Ignatian pedagogy, aims beyond the basic acemidc mastery, rather, the learners' well-rounded growth as persons for others.

What are implications of this study? Although the students assessed that the elements of the Ignatian Pedagogical Paradigm are evident in the entrepreneurship courses, nonetheless, the student conversations and stakeholders' minutes show that there is a need to amplify the said courses to better serve the new clientele. The continuous engagement of the stakeholders in the loop of curriculum development is imperative. The stakeholders epecially the local entrepreneurs have really given deep insight on how the school can better offer an entrepreneurial experience to produce the entrepreneurs of the future and for others using the Ignatian Pedagogical Paradigm. A summary of the modifications is presented in table 1.

Phases of	Description	highlighted activites
entrepreneurial		
Journey		
Phase 1 : Inspire	Students will derive/ draw	Breakfast with entrepenuers
Phase	inspiration from local, antional	Round table discussions with alumni who
	and international enprenuers	went into entrepreneurship
		Journal of the experience
1.		End requiement for student:
	Students will be able to "relate"	PORTFOLIO
	and capture what entreprenurship	End requirement for teacher BOOKAZINE
	is from real life experiences	on entrepreneurial journey series I
Phase 2:	Students will be able to make	writing of propsoed business plan from the
Insight Phase	their ownb business proposal	inspire plhase
	based from phase 1 and manifest	2 rounds of presentation: to select
	it thourgh a feasbility study	faculty and to select entrepeneuers
11		Select Best papers for funding
		"City Business launching"
		trainings to integrate interdisciplinary
		discourse c/o the Student
		Enterprenuership Center (SEC)
		Journal of the experience
		BOOKAZINE on entrepreneurial journey
		series II
Phase 3: Involve	Students will be able to have first	Papers approved in phase 2 will be
Phase	hand experience on being an	implemented through the university
	entrpeeneur by implementing	Student Entreperenushsip Center (SEC)
	the approved feasibility study	incubation program
		Monitoring, evalauting and Journalzing the
		experiences
		Bull session with entrepeneurs
		End requirement for teacher BOOKAZINE
		on entrepreneurial journey series III

Table 1. Summary of Modifications of Entrepreneurial Courses



Conclusion

The results showed that the entrepreneurial journey of the students was meaningful with the elements of the Ignatian Pedagogical paradigm present every step of the way. However, some modifications have to be introduced to adapt to the new clientele .

Recommendation

On the department level, it should seriously consider to adopt the highlighted changes in the apporach and delivery of entrepreneurship courses to better serve the new clientele. Further, to continuously evaluate the impact of these changes. On the institutional level, it should work on to solidify the university wide integration of entrepreneurship in different programs. Also, it needs to strengthen the integration of relevant use of the Ignatian Pedagogial Paradigm in the varying topics of the faculty development program, in so doing, the faculty may comprehend better the applicability of the paradigm in different aspects, thereby, cementing the utilization of this paradigm in the institution.

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Pedagogical Delivery Thru 2C2IR: Lived Experiences of the Elementary Master Teachers in the District of Trece Martires City

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ABSTRACT

A paradigm shift from the teacher-centered to learner-focused instruction has transpired to keep abreast with the demands of the 21st Century. This Phenomenological study aimed to determine the experiences and challenges encountered of all (14) elementary master teachers (MTs) in the district of Trece Martires City in the pedagogical delivery thru the Constructivist, Collaborative, Inquiry-based, Integrative, and Reflective (2C2IR) instruction. It utilized interpretive qualitative phenomenological method of research using the expert opinion sampling, a type of purposive sampling wherein the key informants were experts in the aforesaid approaches and strategies in teaching. The study employed the focus group discussion, unstructured interviews documents and non-participant observation. As to their experiences, themes were generated include, learner-focused instruction, and challenges in teaching such as lack of knowledge of the teachers, time management and poor technical support on how to deliver the approaches in teaching. It showed the boon and bane of the program resulted to the formulation of an action plan for the development program of the MTs. Verification of results from the focus group and justification of themes anchored to the responses of the key informants were validated by the internal and external validators.

Keywords: Constructivist, Collaborative, Inquiry-based, Integrative, Reflective, Pedagogical Approaches, Interpretive Phenomenology





Introduction

For further enhancement of the Basic Education Curriculum in all grade levels, the Department of Education reiterates the use of the Constructivist, Collaborative, Inquiry-Based, Integrative, and Reflective (2C2IR) Pedagogical Approaches in teaching as mandated in the RA 10533 known as Enhanced Basic Education Act of 2013.

Due to the ebb and tide of the implementation of the aforesaid directive, a Regional Memorandum no. 233 s. 2016 adhere the full-bodied execution of 2C2IR in all grade levels. From a various pedagogical approaches in teaching, it focused on the five approaches accompanied with different strategies, methods and activities contingent to the degree of difficulty of the subject matter and the level of the learners as well.

The teachers' instructional role in the teaching-learning situation is one of the contributory factors in the educational experience of a learner. Several studies coined to the program, as quoted in the study of Liu & Chen, 2010, constructivism means that learning involves constructing, creating, inventing, and developing one's own knowledge and meaning. The role of teacher is a facilitator who provides information and organizes activities for learners to discover their own learning. Fakomogbon & Bolaji, 2017, stated that collaborative learning is an approach employed by instructors to facilitate learning and improve learner's performance. While, Olsenet.al., 2014, viewed that collaborative learning often puts challenges on students and teachers that make it hard to implement in the classroom especially in preparing instructional materials and managing small groups in inculcating students' collaboration skills.

While, inquiry-based approach enables the learners to acquire information thru investigation specifically those who are eager to know the phenomenon. As the teacher provides an activity for them to analyse, the learners build understanding and create new knowledge. Though, integrative approach assisting students in making connections across curricula, Dossanova et.al., 2016, cited that text understanding takes place in the process of its interpretation during the study of intertextual connections and the culture and situation context (Chernyavskaya, 2014), handling of available knowledge and creation of new knowledge, actualization of the interpreting cognitive activity within a discourse-text, identification and description of the language units' interpretative function within the discourse and a person's conceptual system (Boldyrev, 2012). It shows the interconnection of curriculum in the other discipline of learning.

Whereas, self-assessment or self-evaluation is the emphasis of reflective approach, learners should be aware of the learning process they are engaged with and analysing things how it works to be a life-long learners which embodied the ultimate goal of the Philippine Educational System.

From this context, the duties and responsibilities of the Master Teachers (MTs) is to have the mastery of the learning competencies as they served as the paragon in educational system. Proficiency of the pedagogical approaches should be visibly seen to them as they were expected to be the advocator/implementer. They also acted as mentor/coach to the teachers as a part of their duties in instructional supervision. The experiences and challenges encountered by the MTs in applying the 2C2IR in the classroom setting in attaining the life-long learners made the study its realization. It aims to unfold the mirror image of the real scenario of the program implementation.

In the same light, the key informants considered as the co-author of the study to promote the culture of research among teachers that would be beneficial to the educational stakeholders. The researchers believed that this study will provide information/feedback to the curriculum planners on how to continuously improve the program.

Research Questions

The main purpose of the study is to explain the experiences and challenges encountered by the Master Teachers in the pedagogical delivery thru 2C2IR. The study sought to answer the following questions:



What are the experiences and challenges encountered by the elementary Master Teachers in using 2C2IR in their lesson?

What is the proposed action plan after knowing the experiences and challenges encountered by the elementary master teachers in the district of Trece Martires City?

Based from the results, what is the future direction of the study?

Research Paradigm

The assessment of the different experiences and challenges of the elementary master teachers in Trece Martires City in connection with the pedagogical delivery thru 2C2IR to their teaching experience follows the process or paradigm below. This would serves as the basis in giving recommendations on the results of the study.



Methodology

The study utilized the qualitative phenomenological method of research to describe the lived experiences of all 14 elementary master teachers and the challenges of the aforesaid program in teaching.

This interpretive phenomenological study looked into the experiences and challenges encountered by the master teachers with regards to the use of the Constructivist, Collaborative, Inquiry-Based, Integrative, and Reflective (2C2IR) Pedagogical Approaches in teaching.

Sampling

The researchers used the focus group discussion to seek the in-depth information that unfolds the current situation on how the key informants responded to the implementation of the program.

The 14 elementary master teachers serve as the key informants in the study. They were selected using the expert opinion sampling, a type of purposive sampling wherein they were dexterous in the aforesaid approaches in teaching.

Out of 14 key informants, 2 are males with 14.29% and 85.71% are females (12 females). They handled their subject of expertise except the 2 MTs handling all subjects because they are Grade I and II teachers. There are 4 MTs handling Mathematics, Science MT teachers were 3, MTs handling Filipino subject were 2, and 1 MT for English, Edukasyon Pangkabuhayan at Pantahanan (EPP)/ Technology and livelihood Economics (TLE), and Music Arts Physical Education and Health (MAPEH) subject.

# Key Informant	Gender	Subject Taught
2	female	Filipino
1	female	English
4	2 females, 2 males	Mathematics
1	female	EPP/TLE
3	female	Science
1	female	MAPEH

Table 1. Basic Profile of the Key Informants with regards to Gender and Subject Taught



2	female	All subjects
	TOTAL	
14	females, 2 males	

Plan for Data Analysis

In analysing data, the researchers made use of thematic analysis according to Braun and Clarke, 2013, thematic analysis is a flexible data analysis that qualitative researchers use to generate themes from interview data following the 6 phases of thematic analysis.

Phases of Thematic Analysis
Familiarization
Generating Initial Codes
Create Initial Themes
Review the Initial Themes
Name and define the themes
Write the Final Report

After following the phases of analysing data, the outcome of the study was presented to the key informants for the validity of their responses and the formulation of the action plan for the development program of the MTs with regard to 2C2IR implementation. The researchers tapped the expertise of their two internal and two external validators for the legitimacy of the themes used by the researchers anchored to the responses of the key informants.

Results and Discussion

The findings of the study utilized qualitative means of investigation. Through focus group discussion, personal interviews and audio recording sought an in-depth information that unfolds the current situation on how the key informants responded to the implementation of the program.

The shared master teachers' insights and responses served as the basis for the thematic analysis of the data.

Objective #1. Experiences and challenges encountered by the elementary Master Teachers in using 2C2IR

Boon and Bane of using 2C2IR as experienced by the Master Teachers

As what the elementary master teachers go through in using 2C2IR in teaching to their pupils, there are benefits and drawbacks of the teaching approaches which substantiate their experiences and explain their challenges encountered.

Several statements coined in the implementation of the 2C2IR pedagogical approaches in teaching. A master teacher handling the sixth grader students stated that using 2C2IR in science subject, "*it is okay to use in the science class because the learners discover the lesson and since science subject requires more activities engaging the learners*". This was supported by a Filipino MT teacher, "*students engage in explorations of real world-problems and challenges.*" An EPP/TLE MT teacher states that, "students enjoy in doing the activity rather than they are sitting and listening to discussion only specifically they like my lesson if I am using 4'As."



Hence, a grade five Mathematics teacher experienced time constraints in teaching a lesson using 2C2IR wherein almost of the activities only the leader is actively participating in the class. He added that this approaches are designed for fast learners. Also, another Mathematics teacher finds hard in preparing so many activities and hard to manage the pupils to process the learning to meet the objectives of the lesson. Using 2C2IR in the lesson is very time consuming. However, a grade six master teacher in science mentioned, "this approaches are better than before since learners are the one who will explore and discover new ideas/things from their lesson".

According to, Gibson, 2017, in her study entitled, "An Examination of How Middle School Science Teachers Conduct Collaborative Inquiry And Reflection About Students' Conceptual Understanding" that the processes of the approach could greatly vary from one collaborative cycle to the next as they depended on the choices of the participants and that the outcome of the inquiry was greatly affected by the existing, prescribed inquiry being done by the district. The school should provide continuous support for collaborative inquiry, which may be in the form of mentoring.

Responses	Basic Themes	Organizing Themes	Global Themes		
the students/pupils engage in explorations of real-world problems and challenges	exploration of real- world problems	reality-based problem solving			
We play games in motivation (motivation pa langng games na kami)	use of instructional games	interest-based			
create activities that will challenge/sustain my learner's interest	interest-provoking actitivities	instruction			
watch on video, and then return to school to engage in the exercises	use of multimedia				
Pupil's are more attentive specially in the lower grade level with the use of ICT integration (attentive ang mga bata lalo nasa lower grades kapag ginamitan ng ICT)	use of computer	technology integration	Learner-		
Pupil's are active because they are not just sitting down rather they perform certain task (Naging active ang mga bata kasi hindi lang sila nakaupo kundi pinapagawa pa sila ng gawain)	participatory learning	cooperative learning	focused instruction		
In subject science it is more on activity(Science kasi more on activity)	activity-laiden instruction				
Pupil's understand better using different activities (mas naiintidihan ng mga bata sa paggamit ng iba't-ibang gawain)	differentiated	differentiated			
Effectiveness of the lesson is based on the level of the learners. (Ang effectiveness ay naayon sa level ng learners.)					
The commitment and dedication of a teacher in preparing DLL with the use of 2C2IR	teacher's commitment	intrinsic motivation	Positive		
2. Teachers have the autonomy of using appropriate strategies in writing their DLL/DLP.	academic freedom	academic freedom	Factors		

Table 2.Boon in using 2C2IR in teaching as experienced by the master teachers



Table 3.Bane in	using 2C2IR in	n teaching as	experienced b	by the mas	ter teachers
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Responses	Basic Themes	Organizing Themes	Global Themes
Use the old way of teaching- question and answer; talk-chalk and focus on content.	formal authority teaching style	teacher- centered instruction	
I find it difficult. (Nahirapan ako)	difficult	complicated	
Teachers are not aware of the terminologies of approaches and they are not so sure of what approaches and strategies they are using. (Hindi masyado aware ang mga teachers sa approaches (term) at hindi sila sure sa mga approaches na ginagamit nila)	lack of knowledge	lack of knowledge	Personal Factors
They should provide us activities so that teachers will execute the lesson. (Sila kailangan mag provide ng activities para execution nlng sa teacher.) It's nice to teach but I hope that we are not	teacher's reluctant to explore	teacher factor	
the one who will the make activities. (Masarap magturo pero sana hindi yung ikaw pa din ang gagawa ng activity.)			
Always the leader do the reporting and it is okay for the fast learners only (<i>Lider lang</i> <i>palagi ang nagrereport kung fast learners</i> <i>ok lang naman</i>)		11 and a d	
Slow learners remain slow (yung slow learners lalong maging slow)	opportunity	opportunity	
It is ideal for science class or intelligent pupils but if we use it for regular class only 3 -5 students are participating actively			T. I. * I
New teachers, they are not so familiar with the approach.	not properly oriented	Poor orientation	Factors
Lesson can't finish in one period only. (Hindi siya natatapos sa isang period lamang)	time constraint		
No time for group and class discussion (nawawalan ng oras sa group at class discussion)	no time for class discussion	time constraints	
time consuming	time consuming		
Pupils are unmanageable in doing the activity (magulo ang mga bata sa paggawa ng activity)	unmanageable activities	classroom management	

The pedagogical delivery using 2C2IR in teaching has disadvantages as experienced by the master teachers. Table 3 showed the challenges of the master teachers in using 2C2IR classified into Personal and Technical Factors. Technical factors outnumbered in the challenges encountered by the key informants. It shows that even the key informants are considered as experts in their field, they still need



technical assistance in using 2C2IR. One of their duties and responsibilities is to conduct instructional supervision to their fellow teachers. They found out that new teachers are not familiar with the approaches and strategies. A master teacher who is assigned as teacher-in-charge in a school states," on the part of the teacher especially the new teachers are not so familiar with the approaches even the seasoned teachers they are not aware of the terminologies and unsure of the approaches and strategies they are using".

Apparently, 2C2IR implementation has its advantages and disadvantages even to the master teachers who were considered as experts in their field of specialization it also reflects to the acceptance and adoptability of the next level of hierarchy in education they are the classroom teachers comprising the Teacher I – III.

Burton and Bartlett (2006), as cited by Pritchard & Woollard (2010) suggest that there is a danger that new ideas for pedagogical approaches in the classroom are often promoted, sometimes by government agencies, without the detailed research and theoretical underpinning relating to it being considered with due diligence

Objective # 2. Proposed Action Plan for MTs on 2C2IR Development Plan

Thereafter knowing the experiences and challenges encountered by the master teachers in the implementation of 2C2IR, several recommendations were stipulated on how to enhance the awareness of the teachers on the proper implementation and uses of 2C2IR in teaching.

A grade five Mathematics MT stated, "to further enhance the knowledge on the approaches, trainings for master teachers should be more intensive and should be modified before rolling out to the teachers to make it more comprehensive and have an appropriate time allocation". Four MTs handling EPP/TLE VI, Filipino IV, and two MTs handling all subjects from grade 1 and 2 affirmed that sometimes approaches and strategies are unclear to them so they suggested having an observation on how the approaches were used from the experts through demonstration teaching. They added that instruction should be standardized to prevent bafflement of ideas on the proper execution. They further believed that Master teachers should equipped themselves before transferring the ideas to the teachers through Focus Group Discussion of the MTs to have a proper incubation process on identifying certain issues and concerns on how to enhance the implementation of 2C2IR before conducting a training or workshop.

Objectives	Strategies/Activities	Person's Involved	Time Frame	Source of Fund	Expected Output
Intensify the level of awareness on the 2C2IR approaches and strategies Upgrade the competencies of the MTs in	Have a Focus Group Discussion to all elementary MTs in the district. Identify their strength and weaknesses in using 2C2IR	14 Elementary Master Teachers	September 2018	Contribution of each school in the district of Trece Martires City	Intensified plan for the District Development Training for MTs based on their strength and weaknesses
using 2C2IR in teaching Master the skills in applying	Conduct a District Development Training for MTs on 2C2IR Lectures from experts	14 Elementary Master Teachers, Invited Lecturers,	4 Saturdays of October 2018	Contribution of each school in the district of Trece Martires City	District Development Plan for MTs on 2C2IR implementatio n

Table 4. Action Plan on 2C2IR Development Plan for MTs



2C2IR in	Demonstration	and School			
teaching	teaching	Principals			
Produce an					
adequate	Administer a Roll	All	4	Contribution of	Roll-Out on
activities in	Out on the	elementary	Saturdays	each school in	the
administering	Development Plan	teachers	of	the district of	Development
Roll-Out on	on 2C2IR for	per subject	November	Trece Martires	Plan for
the	teachers	area	2018	City	Teachers on
Development		taught/		-	2C2IR
Plan on 2C2IR		grade level			implementatio
					n

Based on the development plan for MTs in using 2C2IR as the pedagogical approaches in teaching, the proposed Roll-Out for teachers was moved before the Christmas vacation of the teachers due to the availability of the schedule of activities and the resource speaker as well. Hence, the purpose of the aforesaid training positively contributes to the enhancement of the mastery level of the master teachers in using 2C2IR. Clarification and distinguishing of application of every pedagogical approaches appropriate to the learning competencies needed in every subject area aligned to the level of academic performance of the learners were given emphasis. It also strengthens the level of awareness of the teachers on the terminologies of every approach since they already used it but they are unaware of its terminology.

Furthermore, there is an increase on the mastery level of the MTs in using the 2C2IR pedagogical approaches after a series of FGD within the master teachers according to the subject area they taught. An intensive and comprehensive inputs and activities of the MTs during the Roll-Out on the 2C2IR Implementation was carried out. It encourages the teacher-participants to apply 2C2IR in teaching at some point of their demonstration teaching as an expected output of the training.

Objective #8. The future direction of the study.

The data gathered in the study served as a basis of constructive recommendation in accord with the response of the key informants. Formulation of action plan on the development plan of MTs on the pedagogical delivery thru 2C2IR was the output of the study. This research may be useful in other future studies for other education institutions as references and may adopt or replicate the program.

The program also considerably showed the affirmative and turndown reception of the key informants towards the implementation of 2C2IR program. Further studies may focus on the teacher's teaching performance in correlation to the student's performance using the 2C2IR pedagogical approaches on the effect of the Development Plan for Master Teachers on the regression analysis on the determination of the teacher's unawareness on the aforesaid approaches.

The program must be continuously implemented to still monitor the mastery of the teachers. A longterm implementation plan may be put into place. The researchers, through the results of the study, also intend to influence the policy makers of the educational system to take into consideration the merits and attributions generated by the study

Conclusion and Recommendation

As presented on the results of the key informants' responses on the lived experiences of the elementary master teachers in the district of Trece Martires City showed the advantages and disadvantages side of the program. The results were analyzed using thematic analysis resulting to the formulation of themes anchored to the key informants' responses. The responses were identified in positive and negative impact of the pedagogical delivery thru 2C2IR as experienced by the master teachers. In positive results the codes were categorized in Learner-focused instruction and Positive internal factors while in negative



outcome, themes were classified in Personal factors and Technical factors. It supports the impact of the program to the learners and the teachers as well. Pupils got the necessary information from a lesson through the proper delivery of the teacher.

Almost of the responses of the key informants belong to the learner-focused instruction wherein it is aligned to the objective of the implementation of the program. It allows the learner to explore new ideas, interest provoking activities, with ICT integration, and encourages cooperative learning through differentiated instruction. On the side of the teacher, it stimulates intrinsic motivation and gives them autonomy in the delivery of the lesson.

However, the master teachers experienced the drawbacks of the program despite of the commendable results. Challenges encountered by the key informants were classified into personal and technical factors. It is difficult to use due to lack of knowledge of the teachers and they are not properly oriented. With this, an action plan was made for the development of the master teachers before transferring the ideas to the teachers through Focus Group Discussion of the MTs to have a proper incubation process on identifying certain issues and concerns on how to enhance the implementation of 2C2IR before conducting a training or workshop to all elementary teachers in the District of Trece Martires City. The study revealed that even though they are master teachers they still need a professional development that is constructive in nature and should be developed aligned to the needs of the teachers to identify the effective pedagogical teaching strategies suited to the level of the students.

Through this study, The Department of Education Province of Cavite may utilize the results in designing various Professional Development programs that would intensify teachers' awareness on the proper utilization of pedagogical approaches and strategies in teaching. This research may be useful in other future studies and other educational institutions as references and may adopt or replicate the program.

The researchers, also intend to influence the policy makers of the educational system to take into consideration the merits and attributions generated by the study.

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(APA 6th ed. Format)

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Out-of-Field Teaching: Context, Processes and Experiences in Cavite Public Secondary Schools

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ABSTRACT

Assigning teachers to teach subjects outside their area of expertise is an educational concern which can impact the personal and professional lives of teachers but also the overall quality of basic education. The out-of-field teaching (OOFT) is a significant institutional issue that educational leaders should recognize to minimize the cases and improve the lives of teachers who are in this situation. Data for this quantitative-qualitative study were collected in three phases: the researcher recorded the OOFT cases in five Department of Education offices in the province of Cavite, 274 teachers answered the questionnaire and focus group discussions and key informant interviews were conducted to answer the questions that determined how evident OOFT in the province and the description of the lives of these teachers. While school heads are following Department of Education (DepEd) Orders about hiring processes in public secondary schools, misassignment of teaching loads is an unavoidable situation and most likely to happen to novice teachers. About 19.37% of cases were recorded in the entire province with the highest percentage in the Division of Cavite Province. Small schools or schools with less than 15 teachers obtained the highest percentage of OOFT cases due to limited number of teachers. Subjects like Music, Arts, Physical Education and Health, Filipino and Values have the highest cases of OOFT. This paper concludes that OOFT is a continuous practice partly due to an imbalance or undersupply of teachers majoring in specific subjects and abrupt increase in enrollment which result to additional subject loads. The results of this study provided recommendation for teachers' induction program, school processes in assigning loads and teachers' professional development which can be a basis for further exploration of school leaders and DepEd's policy makers.

Keywords: Secondary Teachers, Misassignment, Non-Specialized, Mon-Major, Out-of-Field, Public School







Introduction

Philippines is facing problems in its educational system for years and one of these are the qualities of teachers and of teaching (Durban and Catalan, 2012). Trainings and seminars are meant to help teachers in teaching their specialization. However, in spite of subject specializations, teachers are given subjects to teach outside their expertise. Teachers who are given this task are called "out-of-field teachers". Some called them "out-of-field teachers" (Barbara, 2006). In the Philippines, non-specialist teaching is the more common term.

The practice of out-of-field teaching (OOFT) is a phenomenon in which school heads are assigning teachers to teach subjects that do not match their fields of preparation (Ingersoll, 2004). In the Philippines, OOFT is more common among secondary schools than elementary because secondary school teachers have to select what to specialize in their undergraduate. Teachers in elementary are called "generalist" or can teach all subjects in the curriculum.

In the DepEd- Division of Cavite Province, on February 2017 there are 3,783 public secondary school teachers who are employed in 64 public secondary schools. From 2,241 public secondary school teachers, 26.19% or 587 are assigned to teach a subject which is not within their area of specialization.

There are number of out-of-field teaching cases that take place in public secondary schools but there is no formal study that would provide accurate data on this subject. This inspired the author to conduct this study to help the DepEd, particularly in the province of Cavite acquire a deeper understanding of the issue. Two hundred thirty-eight (238) of the respondents of this study said that during the time they were hired by the school principals, there was no available subject to be handled aside from a nonspecialized one and because they were newly-hired, they cannot say no to their immediate supervisor. What was more important according to them is that they were hired in public school which makes their future a more secured one. Other reasons why this phenomenon exists, according to the teacher and principal-participants of this study, includes abrupt increase of enrolment which resulted to adding of class sections that produce more teaching loads and lack of teachers and teacher-applicants for some subjects.

The research questions of this study were conceptualized and developed based on the related previous studies related to the phenomenon. Though this reality is happening in many countries, describing it in the Philippine context specifically in Cavite may be difficult to reveal. Hobbs (2012) said that this phenomenon is due to certain reasons such as unmet teacher demand, poor school leadership and management and teachers' choice to be in the situation. Steyn and Vawda (2014) in their study identified that being in the situation is associated with teachers' negative effect on the emotional well-being. On the other hand, this educational issue is worth exploring in order to provide policies that will help teachers (Nixon, Luft & Ross, 2017). Support system can be specifically designed for them to improve teaching performance and achievement.

Research Problem

This study described the situation of out-of-field teaching in the province of Cavite, identify the related processes and draw out essence to the experiences of teachers. Specifically, it answered the following questions:

How evident is out-of-field teaching in the province of Cavite in terms of:

- 1.1 data in each Department of Education-Division Offices,
- 1.2 teachers' years of service,
- 1.3 subject area taught by out-of-field teachers,
- 1.4 out-of-field teachers' subjects of specialization,
- 1.5 and school category?



What are the significant professional, institutional, and personal concerns surrounding the participants' experiences of out-of-field teaching?

What are the insights from the participants as they describe their situation and experiences as out-of-field teachers?

What recommendations can be proposed in addressing issues related to out-of-field teaching and improve the lives of teachers who are in this situation?

Paradigm of the Study

To describe the out-of-field teaching phenomenon in public secondary schools in the province of Cavite and propose recommendations for DepEd in relation to the major concern of this study, the researcher designed the research paradigm as shown in Figure 1.



Method

This research used mixed method or quantitative-qualitative method of research. The quantitative part utilized descriptive method and basic for qualitative part.

The study focused on five Schools Division Offices (SDO) in the province. Division of Cavite Province, the largest SDO covers 16 municipalities and 3 cities. Other SDOs are Bacoor, Cavite City, Dasmariñas and Imus.

Initial data from 5 SDOs were gathered using a template made by the researcher and was accomplished by public secondary schools to identify out-of-field teaching cases. The researcher carefully selected respondents to answer the questionnaire using purposive sampling. Individual detail of teachers was examined to record cases. Information of teachers who took 18-units of education was also evaluated by the researcher. If teachers' bachelor's degree are related to the subject they are teaching, they are not considered as OOFT cases. For instance, an Engineering graduate who teachers Mathematics was not considered a OOFT case or a Nursing graduate who teachers Science.



The instrument used in this study is researcher-made which is divided into two parts: about the teachers' personal information and the teachers' experiences as out-of-field teachers.

For quantitative data, the statistical treatments used were frequency and percentage and weighted mean. Lichtman's 3Cs of analysis was used to analyze the qualitative data.

The first criteria in selecting the respondents was in terms of educational background where the emphasis is on the major subject taken during their undergraduate course and the non-specialized subject they are teaching. Example of this is a Biological Science major who teaches Filipino. The other criterion was length of service, the novice or those who are in the service for less than 5 years and the seasoned or teachers who are in the service from 5 years and above.

The processes of selecting participants for interview and focus group discussion (FGD) were based on the length of service and how the researcher finds the subject they are handling noticeably far from their specialized one.

The author's plan is to have 4-6 participants in FGD. However, after 3 FGDs, the answers of the participants to open-ended questions were similar. That is why in Imus and Cavite City, there was only one key informant for each division since the data has already been saturated from the first 3 SDOs.

Results and Discussion

Problem 1. The initial data were gathered from SDOs. Out of 4,470, there are 866 recorded cases of out-of-field teaching. Cavite Province has the highest number of cases. From 2,241 teachers, there are 587 or 26.19% cases of out-of-field teaching and it is "highly evident" to novice teachers. There are 576 novice teachers who are teaching outside their major subject areas. 290 are seasoned teachers. The result revealed that novice teachers accepted the teaching assignments due to the reason of being a newly-hired. They cannot say "no" to their school head because what is more important is job security.

Out-of-field teaching is "moderately evident" in MAPEH with 266 recorded cases, followed by Filipino with 166 cases. MAPEH has the highest cases of OOFT in 4 SDOs except in Cavite City with Values Education as the subject with the highest number of out-of-field teachers with 14 cases.

The result revealed that out-of-field teachers in MAPEH, Filipino and Values Education are from the fields of English, Mathematics and Science (ENSCIMA) and TLE. This implies that teachers across various disciplines are experiencing this phenomenon.

The researcher also found out that the smaller the school in terms of number of teachers, the higher the cases of OOFT. Because of this finding, the researcher categorized the schools into 3: small or schools with less than 15 teachers, medium or schools which have 15-30 teachers and large or schools with more than 30 teachers. OOFT is "highly evident" in small schools, "moderately evident' in medium schools and "weakly evident" in large schools. This finding is significant in this study because it reveals that this institutional issue has something to do with the number of teacher supply in schools. School heads they have no choice but to distribute the subject to available teachers.

Problem 2. The respondents of this study are 182 novice and 82 seasoned teachers from a population of 866. The questionnaire presents the professional, institutional and personal experiences of out-of-field teachers in teaching a subject outside their area of specialization

9 out of 10 statements about professional experiences implies that most teachers are equipped with skills needed by a teacher from preparation of lesson plans to selecting the best assessment and considered handling a non-major subject as a positive experience in the start of their career. A teacher said that it is a challenge to teach any subject after being hired in DepEd but surviving the process of application is already an achievement in itself. This signifies that out-of-field teachers are flexible and adaptable. Among the statements in the survey related to professional experience, the statement "Preparations of teaching my major subject has no difference in teaching a non-specialized one" gained the lowest mean



of 2.81 and interpreted as "Uncertain". This shows that the teaching preparation in teaching a subject outside specialization differs from teaching a specialized one. A teacher said, "You really need to exert extra effort in teaching for the students to learn more."

For respondents' institutional experiences listed, result implies that one of the best support systems an out-of-field teacher may get while starting to move out from the comfort zone is from co-workers.

Supportive colleagues are weapons to surpass the first year of being an out-of-field teacher. Vale (2010) stated that support and mentoring from colleagues are achievable and desirable in the first year of teaching.

In an article written by Ratcliffe (2013), she adds that mentoring and training is essential to help teachers take on new fields. The result of the survey about institutional experiences implies that schools are doing their part in addressing the needs of teachers as they send teachers to trainings.

The new teaching assignment of teaching a non-major subject for the first 1 to 2 years is enjoyable as the participants said. However, some of the problems related to the situation arise when they become aware of the requirements for higher teaching position especially the Master Teacher item. She said, "Because Filipino is not my major subject, I cannot do the demonstration teaching." What to take for master's degree also puzzles them. She said that other teachers advised them to take masters on the specialized subject while other said that they should concentrate on subject that they are currently teaching. This confusion was opened up during the FGD, "In our school, there is no Filipino major who teaches Filipino, so what I advised to my co-teachers in what to take up in graduate studies is to enroll in their major subject and not Filipino." This statement brought confusion to another participant as she said, "How about me? I am taking MA in Filipino but Science is my major subject during my undergraduate, will I be promoted?" This issue needs to be addressed so that teachers will be guided in their formal study.

In terms of their personal lives, teachers are enjoying their work despite of the subject load. They are confident in what they are teaching and motivated to teach everyday. A participant said that because they give more priority to the location of the school instead of teaching their major subject, they can save time in traveling from home to school and vice-versa which results to more time with their families.

Furthermore, based on the results of the survey, they are satisfied with their performance in teaching the subject which is not their forte.

The result depicts that this is not a big issue to teachers in the beginning of their career because teachers can handle any subject given to them. What is more important is the security of tenure and when it comes to work, they can easily adjust to the situation.

Problem 3. In this problem, qualitative means of investigation was employed. The 3 themes emerged from the experiences of the participants seems like a new driver's journey which started from sitting in a car and ended up in a crossroad where he should select where to go. These are: The Windshield: Out-of-field Teaching in the Eyes of the Teachers, The Shifting of Gears: The Teachers' Gradual Innovation, and At the Crossroad: Where to Go and What Lies Ahead.

The first theme that was revealed has an implication to the aspiring teachers and teacher-applicants as they have to prepare to be in this situation and also to the school head's guidance and support to newlyhired teachers. School leaders have to hold deeper understanding on how to guide the teachers in terms of career path. The said implications support the researcher' argument on the need for in-service teacher training for teachers before they go to actual teaching. Price (2017) emphasizes that pre-service program standards has to be developed to ensure that teachers assumed the necessary pedagogical and content knowledge to be effective teachers because of the possible scenario that after graduation, teachers can be assigned to teach subjects for which they no formal training.

The second description has an implication on the distribution of teaching loads, addressing the need for orientation of the novice out-of-field teachers. Moreover, the support system that surrounds teachers' plays a significant role. Department heads and co-teachers are one of the reasons why the participants survive



especially during the first few months of teaching the subject. The said implications support the researcher' argument on the critical role of the school heads in relation to the phenomenon that the proper teachers' placement and training promotes educational quality. Participants' acceptance on their experiences varies. Some felt the accomplishment and fulfillment. Some are confused on what will be the direction of their career while others felt the need to find another job because they feel uncontrollable with their future.

The third description of the participants' experiences has an implication to the call for a policy in subject loading with emphasis on the area of specialization of teachers and on the policy in ranking and promotion with clear guidelines in relation to the subject handled by the teachers.

As the researcher analyzed every significant detail, it led her to the identification of the essence of the phenomenon which can be synthesized into 6 parts: The Out-of-field Teachers' Apprehension, The Out-of-field Teachers' Absorption, The Out-of-field Teachers' Exploration, The Out-of-field Teachers' Support Network, The Out-of-field Teachers' Gradual Innovation and The Out-of-field Teachers' Destination.

The following recommendations on concerns related to OOFT

Induction Program

Separate Induction Program to New Out-of-field Teachers Mentoring and coaching on the following areas: Content and Pedagogy Provision of Daily Lesson Plans or Logs or workshop Preparation of IOOFTructional Materials Learners' Assessment Guidelines on Promotion and Reclassification

New Out-of-field Teachers have different needs. As mentioned by a teacher-participant, "I did not expect this. I thought every year there are vacant items for newly graduates." Kiggundu and Nayimuli (2009) mentioned in their study that student-teachers despite the thorough preparation in pre-service education were faced different challenges which significantly affected their ability to accrue maximum benefits from the teaching practice.

Separate Induction Program to New Out-of-field Teachers. DepEd has a standard Induction Program for newly-hired teachers that make this recommendation very limited. The researcher' suggestion is that there can be a separate part during the Induction Aside from the usual topic during the induction program like Duties and Responsibilities of Teachers, identified new N out-of-field teachers can have a mentoring session on critical areas in curriculum implementation that will help them to be more prepared with their new tasks.

The following can be a part of a separate Induction Program:

Mentoring and coaching.

a.1 Content and Pedagogy

Given the Regional Memorandum 233 series of 2016 or about the Implementation of the Pedagogical Approaches Mandated by Republic Act 10533, sample demonstration teachings on the subjects where OOFT is more common can be given to out-of-field teachers. This can be an avenue for teachers to have ideas on how to plan and design strategies on different topics included in the prescribed curriculum guide.

a.2 Daily Lesson Plan (DLP) or Log (DLL) coaching



The SDOs, thru Master Teachers (MTs) can craft DLPs or DLLs to be used by all teachers in the division to lessen the burden of out-of-field teachers. Coaching sessions headed by Education Program Supervisors (EPS) and experienced MTs can also be provided.

a.3 Preparation of Instructional Materials

The SDO's Learning Resources Management and Development System Unit can have an orientation on the out-of-field teachers not only on how to access the portal and the features its parts but also on other ways or means that can help teachers to find resources on designing instructional materials.

Learners' Assessment

Designing strategies, making of instructional materials and the execution of teaching cannot be called as successful if assessment of students' learning is a failure. Experts on the subjects with more cases of OOFT can identify and select learning competencies that need more careful and planned assessment of students' outcome. The SDOs can invite MTs to give ideas on how to conduct more meaningful and purposeful assessment on the selected topics included in the CG.

Guidelines on Promotion and Reclassification

During the interview with the participants, one of the dilemmas of some teachers specially the seasoned ones is about their situation related to promotion and reclassification. An example of confusion that is related to promotion is mentioned by a participant, "How about me? I am enrolled in Master of Arts in Filipino but my major subject is Science, will I not be promoted?" This suggestion, having a session, discussion and answering of queries related to guidelines on promotion and reclassification can be a very helpful topic to new out-of-field teachers.

On Practices in Assigning Teaching Loads and Mentoring

Giving of at least one major subject load to out-of-field teachers Mentoring session on the school level on the non-specialized subject assigned Monitoring of teaching load

Giving of at least one major subject load to out-of-field teachers. Because of the existing policy on number of teaching loads, school heads distribute subjects to teachers who lack 6 loads. This practice adds to the number of OOFT cases. There are teachers who handled a non-specialized subject and resulted to non-giving of opportunity to attend training and demonstration teaching which is very crucial for a Master Teacher position. Likewise, even a seasoned teacher cannot have an opportunity to be a Department Head. To give an equal opportunity, a teacher who was given a subject outside his/her expertise should have at least a teaching load of major subject. This practice can ensure that teachers are still part of departments where they are supposed to belong. In this way, they can be given opportunities to do tasks needed for promotion and performance rating such as conducting action research or demonstration teaching during LAC session or in higher levels.

Mentoring sessions in the school level on the out-of-field subject assigned. Proper interventions can be made to ensure that schools are equipped with qualified teachers to handle even a subject outside their specialization. Because of this phenomenon, public secondary teachers have to be a generalist or can teach any subject. Contrary to a statement of a participant that she did not expect to teach a non-major subject, one participant said, "I expected this to happen because when I was teaching in a private school, this also happened to me." As of the moment OOFT is a reality, but proper intervention can be made like mentoring sessions on areas in handling a non-major subject. Coaching and mentoring sessions can be provided to out-of-field teachers by Department Heads or Master Teachers starting from selection of best teaching method, lesson planning, designing of instructional materials and assessing learners.



Monitoring of teaching load by school heads. As school head, it is important to take note of the existing data and information and available number of teachers assigned to out-of-field positions to fix the issue and make solutions to already complicated teaching situation (Du Plessis, 2016). Some seasoned teachers were not given a subject of specialization for a long time thinking that they are already contented with the subject they are teaching. But according to a statement of a seasoned teacher, "I wish I was given a major subject before, but now I have to do a major review of the subject. In my age, I already forgot Math." To large schools which have department heads who are tasked to assign loads to teachers, closed monitoring of school heads should be done to ensure that equal opportunities are given to teachers to at least teach a subject of their specialization. Issues on giving equal opportunity to all teachers to handle their major subject can be solved if monitoring is done especially in medium and large schools so that proper intervention can be made.

Out-of-field Teachers Professional Development

Capacitating OOFts in handling an out-of-field subject through different modes of learning Profiling of SDOs through school heads on the OOFT existing cases

Capacitating out-of-field teachers in handling an out-of-field subject through different modes of learning. The misassignment can bring confusion to teachers or their career path. If there is no other option but to give a non-specialized subject to teachers, the school can send them to training before the school year begins. The school head may ask the teacher to voluntarily enroll to a school offering preservice education and may take major subjects for that specialization only. In the same manner, certification practices can also be strengthened. The school head can send teachers to colleges to obtain certification in teaching a particular subject. For example, Certification in Teaching Physical Education or Values Education. These two: acquiring units in major subjects and certification will add to the qualification of teachers to handle a non-major subject. Another intervention can be done by EPSs of subjects which have high number of OOFT cases. They can design an intervention program specifically for out-of-field teachers only.

Profiling of SDOs through school heads on the OOFT existing cases. On the school level, school leaders can have a benchmarking of the skills and expertise of teachers and alignment of these to the needs of the school so that proper teaching assignment can be given and misassignment can be avoided. An OOFT said, "If new teachers are properly guided, the skills, expertise and creativity of teachers can be developed and nurtured. The teacher will be more productive if he knows where and how it can be improved. For SDOs, they can have a database updated regularly of the number of teachers needed per subject area to match the qualified teacher applicants to school needs. District and division monitoring and evaluation can be done every school year to ensure that deployed teachers are given at least one major subject load to teach or if not, was given proper intervention to improve the capability of teachers. Follow through monitoring and interventions at the division level can be done. SDOs should encourage schools to rethink how staffing decisions should be made and how to place teachers on department based on their specialized subject.

The above-mentioned recommendations can help teachers, schools and SDOs to ensure that public schools are staffed with competent teachers. Ultimately however, long-term solutions to the problems and issues related to the phenomenon of out-of-field teaching will require looking down to the ultimate roots of it thus requiring the department to conduct more researches on this topic.

The teacher quality and quantity are crucial to every country's educational system. Out-of-field teaching issues such as difficulty and inadequate everyday teacher preparation, no certification standards to teach non-major subject, teachers' subject mismatch or misassignment, teacher hiring and promotion to some extent are researchable issues and can all be traced deep down to a common root.



This phenomenon, OOFT is a challenge to the department that is clear and needs attention. As the country faced and surpassed the challenge of implementing the new curriculum, upgrading the quality of teachers also needs strategic and long-term planning.

Conclusions and Recommendations

It was evidently shown that OOFT is a continuing practice that exists in public secondary schools in Cavite. OOFT is consistent in five SDOs in the province and higher percentage of cases can be found on small schools which are usually situated in rural areas. Unexpected increase in enrolment which resulted to additional sections and workload to teachers is also a reason why OOFT is happening. Higher numbers of out-of-field teachers are novices who accept handling a non-specialized subject because they are new to the workplace. Another reason is that being employed in a public school means secured job and future. OOFT continues to occur because of imbalance of supply and demand of teachers and teacher-applicants for specific subjects. There is an undersupply of teachers majoring Filipino and MAKABAYAN subjects such as Social Studies and Music, Arts, Physical Education and Health. Undersupply of teachers majoring mentioned subjects happen because there are only few colleges offering specialization on those subjects in the province. Out-of-field teachers' experience challenges and adjustments during the first year of teaching but they get used to it and enjoy teaching the subject as they prepare, perform and survive in their day-to-day tasks. However, problems related to their situation felt when teachers experience being underprivileged to some areas in professional development needed for obtaining higher teaching position.

This phenomenon has definitely an impact to school leadership. School heads are not new to this situation and how they view OOFT will definitely give direction to the career of teachers. A principal said that OOFT is an unavoidable situation in schools. A school in a remote area rarely has applicants to be evaluated for a teaching position that needs a teacher with specialization on a particular subject. Also, teachers have required total number of load per day and giving a subject outside their area of expertise is a way to complete the 6-hour teaching load per day. Values Education, according to a principal is an option to complete the required teaching loads.

It is equally important to discern what the school heads' support carried out in addressing the situation. OOFT absolutely has relation to leadership practices. It is in this view that this part would like to highlight the implication of OOFT to school management. A principal said, "Like my newly-hired teacher who is an English major but was tasked to teach Science. I asked her to enroll in a university and take major subjects only."

School head follows the hiring procedure directed by DepEd in the process of evaluating each applicant. There are several DepEd Orders that are released so that every school will have a uniform procedure in hiring. A principal said "I have nothing to say with DepEd Order No. 50 series of 2016, because we are properly implementing it." However, during the actual hiring, this is where other things are happening.

Further researches are also needed to know the impact of out-of-field teachers on students' subject understanding and academic achievement, comparison of effectiveness of out-of-field teachers in teaching to other teachers with specialization on the subject. Researches on job productivity and satisfaction of out-of-field teachers can also be a subject for study.

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The Effectiveness of Positive Communication and Digital Literacy Skills (PCDL)in Science Teaching Training for Pre-service Teachers

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ABSTRACT

The objective of the present study was to develop a PCDL training program to enhance positive communication and digital literacy skills in science teaching of pre-service teachers. The present study employed a pre- and post - implementation design. A total of 27 pre-service teachers who completed science teaching course-had participated in this study. The PCDL training program included; 1) preparing pre-service teachers to work in schools in the digital era, 2) accessing modern sciences and technology information, 3) designing lesson plans with positive communication, 4) using digital technology and the Internet for science teaching tools and 5) using digital technology and the Internet for educational assessment. The data were analyzed using scoring rubrics, descriptive statistics, t-test dependent. The internal consistencies of both measurements proved to be reliable (Cronbrach's alpha > 0.75). The results showed that there was a significant difference in the scores for the pre-test of positive communication (mean = 3.25, SD = 1.40) and post-test of positive communication (mean = 8.00, SD = 1.41) t(26)=12.02, p = .000. The overall post-test digital literacy scores were significantly higher than the pre-test digital literacy scores at the significant level of .05. Positive communication and digital literacy skills in science teaching of the pre-service teachers were improved after attending the PCDL training program.

Keywords: Positive Communication, Digital Literacy, Science Teaching, Pre-Service Teacher and Training





Introduction

Digital technology has been growing rapidly in many countries. Most countries have many projects to engage ICT literacy, computer literacy and internet literacy for developing countries such as the DigEuLit project and Digital Horizon (Martin and Grudziecki, 2015). The e-learning program of commission developed the DigEuLit project that has tasks of defining and developing a framework including tools for developing digital literacy in European education setting. They define "digital literacy" as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (Glister, 1997). Moreover, UNESCO, policies and research explain the word, "digital literacy" as the ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. Early descriptions of computer-related literacies also focus on the acquisition of sets of rules and technical capabilities (UNESCO, 2018, Spante et al. 2018)

Thailand is one of the rapid evolution of the digital technology, so the royal Thai government has officially announced the Thailand 4.0 in 2018. In education, the ministry of education has planned to engage digital competence and digital literacy which serve as Thailand 4.0 for basic education and preservice teacher education program. Especially, pre-service teachers in science education need to engage in digital competence and digital literacy because they will be in-service teachers who use digital technology such as computers, computer programs, microphones, tablets or smart phones to help their students actively engage in the acquisition of scientific knowledge. Digital technology helps students to gain science knowledge but positive communication help students to develop science concepts. Therefore, the researcher developed the positive communication and digital literacy in science teaching training program to encourage positive communication techniques and digital literacy skills in science teaching for pre-service teachers.

Positive communication and digital literacy in science teaching (PCDL) training

program

The PCDL training program consisted of a positive communication technique a digital literacy approaches and a 5E instructional model. The positive communication techniques were the act or the processes of communicating to convey information from someone to another. There are 12 techniques for positive communication (Ketman, 2009, Blain, 2019):

- 1. Positive attitude toward student
- 2. Good environment management
- 3. Greeting
- 4. Starting instruction with benefit of learning
- 5. Explore learning problem
- 6. Attention
- 7. Asking the What and How Questions, Not the Why Questions
- 8. I-You message
- 9. Encouraging students to participate in class
- 10. Empowerment and positive reinforcement
- 11. Negative reinforcement
- 12. Nonverbal communication

The digital literacy is the ability to understand digital tools, to communicate digital information and to use digital equipment from wild media. (Glister,1997, OCSC, 2018). An academic institute and



educators suggested that digitally literated Thai undergraduate students should be able to access, manage, evaluate, integrate, create and communicate information (OCSC, 2018, Techataweewan and Prasertsin, 2018)

The 5E instructional model was a science teaching method. The institute for the promotion of teaching science and technology (IPST) suggested educators to teach 5E instructional model in Thai schools. The 5E instructional model includes 1) engagement 2) exploration 3) explanation 4) elaboration and 5) evaluation. (Duran and Duran, 2004)



PCDL training program was conducted for 5 weeks in a science teaching course. (See Table 1)

	Digital literacy								
Planning	Engagement	Exploration	Explanation	Elaboration	Evaluation				
- Preparing	- Using	- Scientific	- Using	- Using	- Using				
- Preparing good questions for student to answer - Preparing learning and teaching resource (Websites or e- journal) - Planning a writing	- Using application (eg. radar map, satellite map online) to engage in learning the topic (eg. earth science) - Open-ended question - Empowering students to discuss the topic	- Scientific process skills - Using application (QR code, e- book, AURASMA) - Empowering students to discuss the topic	- Using application (QR code, e- book, AURASMA) - Open-ended question - Empowering students to discuss the topic	- Using application (QR code, Google classroom, Google drive) - Open-ended question - Empowering students to discuss the topic	- Using application (Kahoot, Zipgrade, Plickers) - Empowering students after evaluation				
lesson	-	Desitive ee	mmunication						
		Positive co	minumeation						

Table 1 PCDL training program



Research Objective

The objective of this study was to develop a PCDL training program to enhance positive communication and digital literacy skills in science teaching of pre-service teachers.

Method

Statistically, research and development design was used in the development of PCDL training program. A quasi-experimental one group pre-test post-test design were implemented to test hypotheses. The independent variable was the PCDL training program and the dependent variables were the positive communication and digital literacy skills.

- E: O1 X O2
- E; Experimental group
- O1; Pre-test
- O2; Post-test
- X; PCDL training program

This research was conducted in 5 weeks (November – December 2018) in the science teaching course at Faculty of Education, Ramkhamhaeng University. Pre- and post-test data were collected during of November and December 2018. Data collection techniques used in this study were positive communication and digital literacy test (writing lesson plan), and observation. The key indicators of positive communication were adapted from Wawta Techataweewan and Ujsa Prasertsin Ketman's digital literacy indicators (Techataweewan and Prasertsin, 2018). The key indicator of positive communication from Panom Ketman's positive communication techniques (Ketman, 2009) for positive communication techniques. The positive communication rubrics contained 4 items (see Appendix 1) and the digital literacy skills rubric contained 11 items (see Appendix 2). The received data were analyzed using scoring rubrics, descriptive statistics, *t-test* dependent. The internal consistencies of both measures proved to be reliable at the Cronbrach's alpha level > 0.75.

Results

Twenty seven participants were pre-service teachers. The results show that:

1. Positive communication skills

Table 2: Baseline - and post-implementation of PCDL training program to enhance abilities of

	Торіс		Baseline		Post- implementation		<i>p</i> -value
		Mean	SD	Mean	SD		
1	Positive communication in planning	1.00	0.78	1.96	0.65		
2	Questions in activity	0.93	0.68	1.96	0.52		

positive communication skills



	Торіс		Baseline		Post-		
				implem	nentation	t	<i>p</i> -value
		Mean	SD	Mean	SD		
3	Participation activity	0.00	0.00	1.37	0.63		
4	Empowerment in activity	1.33	0.48	2.70	0.47		
	Total (12 points)	3.26	1.40	8.00	1.41	12.02*	.000

*p < .05

There was a significant difference between for pre-test scores of positive communication (mean = 3.25, SD = 1.40) and those of the post-test of positive communication (mean = 8.00, SD = 1.41) conditions; t(26)=12.02, p = .000.

2. Digital literacy skills in science teaching

2.1 Science and technology information access

Table 3: Baseline - and post-implementation of PCDLtraining program to enhance abilities to

Торіс	Baseline		Post- implementation		t	<i>p</i> -value
	Mean	SD	Mean	SD		
Keyword searching skills	0.89	.64	2.89	.32		
Access to online resource	1.81	.83	2.59	.57		
Analysis and classification of information	0.37	.49	1.63	.69		
Total (9 points)	3.07	1.21	7.00	1.07	13.02*	.000
	TopicKeyword searching skillsAccess to online resourceAnalysis and classification of informationTotal (9 points)	TopicBaseKeyword searching skills0.89Access to online resource1.81Analysis and classification of information0.37Total (9 points)3.07	TopicBaselineMeanSDKeyword searching skills0.89Access to online resource1.81Analysis and classification of information0.37Total (9 points)3.07	TopicBaselinePoMeanSDMeanKeyword searching skills0.89.642.89Access to online resource1.81.832.59Analysis and classification of information0.37.491.63Total (9 points)3.071.217.00	Post- implementationTopicBaselinePost- implementationMeanSDMeanSDKeyword searching skills0.89.642.89.32Access to online resource1.81.832.59.57Analysis and classification of information0.37.491.63.69Total (9 points)3.071.217.001.07	Post- implementationTopicBaselinePost- implementation t MeanSDMeanSDKeyword searching skills0.89.642.89.32Access to online resource1.81.832.59.57Analysis and classification of information0.37.491.63.69Total (9 points)3.071.217.001.0713.02*

		11	15		
access	science	and	techno	OOV	information
access	Selence	unu	teenno	651	mormation

*p < .05

There was a significant difference between the pre-test scores of abilities to access science and technology information access (mean = 3.07, SD = 1.21) and post-test of positive communication (mean = 7.00, SD = 1.07) conditions; t(26)=13.02, p = .000.

2.2 Using digital tools

Table 4: Baseline – and post-implementation of PCDL training program to using digital tools in lesson plan and practice.

	Торіс	Base	eline	Post- implementation		t	<i>p</i> -value
		Mean	SD	Mean	SD		
1	Using information data on website (eg satellite, statistics or epidemic data)	0.00	0.00	1.89	0.75		
2	Using a digital tools for explain information	1.22	.75	2.26	0.59		



	Торіс	Base	eline	Post- implementation		t	<i>p</i> -value
		Mean	SD	Mean	SD		
3	Using a digital tool for worksheet/	0.89	.75	2.44	0.58		
	homework/ group activities						
	Total (9 points)	2.11	1.25	6.59	1.47	10.08*	.000

*p < .05

There was a significant difference between the pre-test scores of using digital tools in lesson plan and practice (mean = 2.11, SD = 1.25) and post-test of positive communication (mean = 6.59, SD = 1.47) conditions; t(26)=10.08, p = .000.

2.3 Using digital tool for assessment

	Торіс	Base	eline	Post- implementation		t	<i>p</i> -value
		Mean SD		Mean SD		1	
1	Using a statistic program for pre- assessment, formative assessment or summative assessment	0.85	1.00	2.56	3.00		
2	Using an application or website for pre-assessment, formative assessment or summative assessment	0.56	1.00	2.30	2.00		
3	Validity of digital tools	0.30	.47	1.60	1.00		
4	Relationship between objective and subjective assessment	1.44	2.00	2.74	3.00		
	Total (12 points)	3.15	1.63	9.19	1.42	18.00*	.000

Table 4: Baseline - and post-implementation of PCDL program

*p < .05

There was a significant difference between the pre-test scores of using digital tools in lesson plan and practice (mean = 3.15, SD = 1.63) and post-test of positive communication (mean = 9.19, SD = 1.42) t(26)=18.00, p = .000.

Conclusion

Regarding the results of the present study above, it can be summarized that: 1) PCDL training program encouraged pre-service teachers to increase abilities of positive communication techniques and digital literacy skills in the 5E instructional model of science teaching.



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Appendix 1: 3-point of positive communication rubric

	Торіс	0 1		2	3
		U	(Poor)	(Fair)	(Good)
1	Positive communication in planning	None	More teacher talk and student play passive role	Teacher and student talk but student still play passive role	More student talk and less teacher talk
2	Question in activity	None	Closed ended questions	Open end questions but no motivation	Motivational questions
3	Participation activity	None	Teacher-center approach	Child-center approach but less activity	Group discussion/ Participatory activity/ Laboratory and small group work / Project
					based/Research based
4	Empowerment in the classroom	Punishment	None	Rewarding/ supporting/ Compliment	Give Students an Opportunity to Make Their Own Decisions and supporting/ Rewarding/ supporting

Appendix 2: 3-point of digital literacy rubric

	Topic 0		1	2	3
			(Poor)	(Fair)	(Good)
1	Keyword searching skills	None	More teacher talk and student play passive role	Teacher and student talk but student still play passive role	More student talk and less teacher talk
2	Access to online resource	None	Closed ended questions	Open end questions but no motivation	Motivational questions
3	Analysis and classification of	None	Teacher-center approach	Child-center approach but	Group discussion/
	information		/s\$	less activity	Participatory activity/ Laboratory and small

	Торіс	0	1	2	3
			(Poor)	(Fair)	(Good)
					group work / Project based/ Research based
4	Empowerment in the classroom	Punishment	None	Rewarding/ supporting/ Compliment	Give Students an Opportunity to Make Their Own Decisions and supporting/ Rewarding/ supporting
5	Using information data on website (eg satellite, statistics or epidemic data)	None	1 information data or 1 website for reference	More than 1 information data or 1 website for reference	More than 1 information data or 1 website for reference and interpreting
6	Using a digital tool for explain information	None	Using a computer program or application but it did not enhance learning	Using a computer program or application to enhance learning	Using variety computer programs or application to enhance learning
7	Using a digital tool for worksheet/ homework/group activities	None	Using a computer program or application but it was not suitable	Using a computer program or application to enhance learning	Using variety computer programs or application to enhance learning
8	Using a statistic program for pre- assessment, formative assessment or summative assessment	None	Using a statistic program for pre-assessment, formative assessment or summative assessment but it was not suitable	Using a statistic program for pre-assessment, formative assessment or summative assessment and interpreting	Using a statistic program for pre-assessment, formative assessment or summative assessment, interpreting and presentation
9	Using an application or website for pre-assessment, formative assessment or summative assessment	None	Using a statistic program for pre-assessment, formative assessment or summative assessment but it was not suitable	Using a statistic program for pre-assessment, formative assessment or summative assessment and interpreting	Using a statistic program for pre-assessment, formative assessment or summative assessment, interpreting and presentation
10	Validity of digital tools	None	Conflicting objectives	Non-validity	validity
11	Effectiveness of tools	None	Non assessment	Effectiveness in knowledge	Effectiveness in knowledge and practice
		AIRV			
Developing the Learning Process of the Safe Plant Production and Organic Agricultural Practices Utilizing the Pomelo Garden as a Classroom at Chainat Province in Thailand

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ABSTRACT

This study aims to 1) investigate the development of the learning process of the safe plant production and organic agricultural practices utilizing the pomelo garden as a classroom at Chainat province in Thailand, and 2) evaluate the pretest and posttest of the farmers' knowledge concerning the development of the learning process of the safe plant production and organic agricultural practices utilizing the pomelo garden as a classroom. The population in this study were 31 farmers who cultivated Khao Taeng Gua pomelo in Chainat province. The instrument used to collect the data was the pedagogical procedure utilizing the pomelo garden as a classroom as well as the pretest and posttest. The statistical methodology used to analyze the data were mean, standard deviation and paired t-test.

The findings of this study were as follows: 1) Based on the developing of the learning process of the safe plant production and organic agricultural practices using the pomelo garden as the instruction and learning facilities, there are ten classroom settings and the amount of learning time was fifteen times, utilizing the pomelo garden as the learning management community and village scholars and academic as the speaker. Additionally, the outcome learning using the pomelo garden as a classroom as well as the knowledge transfer by the village scholars were successful with Khao Taeng Gua pomelo garden management. Moreover, the farmers implemented the knowledge application to solve their problems or develop Khao Taeng Gua pomelo cultivation 2) Regarding the pretest and posttest, the result found that the mean score of the pretest was 6.03, whilst the mean score of the posttest was 8.13. Hence, there was statically significant mean difference between the pretest and posttest at the significant level of 0.05.

Keywords: Khao Taeng Gua Pomelo, Farmers, Learning



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Introduction

In Thailand, Higher Education Institutions have been implemented into 4 missions, including teaching, academic services, research as well as arts and culture preservation. Particularly, this study is regarded as the integration of instruction in accordance with the academic services that are the consolidation of two missions as the Rajabhat's policy. Additionally, the Rajabhat Universities has implemented under the Rajabhat's strategy to develop the local community according to the Rajabhat Universities Policy B.E. 2560-2579. Similarly, this policy is led the educational schemes as the significant element in order to encourage education and constitute the stability for the country. By extension, Chandrakasem Rajabhat University is one of the thirty- eight Rajabhat Universities which apply the instructional knowledge in order to solve the problems based on the communities' needs.

In terms of solving the problems of the academic services in the community, the workshop is 1-3 days and emphasizes on the theory or the learning simulation approach for the farmers to comprehend the learning process in the academic services. However, the farmers comprehend merely the part of the cultivation in the authentic farming procedure. This study, therefore, focuses on the learning simulation approach utilizing the organic farming subject that is integrated into the academic services in accordance with the new method for the farers. Accordingly, the pretest and posttest are implemented in this study in order to stimulate the farmers to be interested in this training.

In the aspects of and Khao Taeng Gua pomelo cultivation with the organic farming subject that integrates into the learning process are selected in this study. Since Khao Taeng Gua pomelo is considered as a provincial fruit in Chainat. Likewise, the flavor has the unique that seems to be the large dried shrimp, golden honey, sweet and sour soft texture. According to Chainat Provincial Agricultural Extension Office (2017) indicates that the cultivation Khao Taeng Gua pomelo has decreased due to the flooding problem in 2011and the ongoing drought in 2011-2015. Moreover, the number of the Khao Taeng Gua pomelos has decreased from 4,000 to 1,356 rai. Currently, Chainat Provincial Agricultural Extension Office has implemented to cultivate Khao Taeng Gua pomelo in 100 rai per year. In addition, Khao Taeng Gua pomelo is regarded as the initial plant utilizing the chemical in Chainat. Therefore, Chainat has an area of rice cultivation as 884,451 rai (Office of Agricultural Economics, 2017).

When utilizing the chemical in pest elimination is the high quantity. As a result, the various vegetables and fruits are aware of the pests that flee from the farmlands to other agricultural crops. In addition, the citrus plant is considered as the plant in accordance with the pests and diseases that damage particularly the pomelo garden, namely, leaves, branches, and roots. The effect of the pomelo is as follows: the low of the productivity, the low weight of the pomelo and the unattractive skin of the pomelo. Another factor is the pest, including thrips, leafworms, borer worms, African red mites, broad mites, effect borer worms and smallpox worms.

As aforementioned above, this study focuses on utilizing Khao Taeng Gua pomelo garden as a classroom in Chainat, Thailand. Due to the collaboration between the university and the community, they have mutually promoted regarding the research in order to develop the community in encouraging the learning process. Additionally, this collaboration is involved in the working model university in developing the community including the government agencies that take part in this procedure. The goal of this procedure is to integrate the undergraduate level with the authentic learning of farmers. This research also develops the new learning process for the farmers and advocates the safe pomelo production as well as promotes to the organic product. Based on this learning development, it assists the farmers to learn the authentic situational approach together with solving the pest problem in agriculture. Additionally, it advocates organic farming and provides the model, facilitating the knowledge service for the community in accordance with the new method.

Objectives of the study

The purposes of the study are to:



1. Investigate the development of the learning process of the safe plant production and organic agricultural practices utilizing the pomelo garden as a classroom, and

2. Evaluate the pretest and posttest of the farmers' knowledge concerning the development of the learning process of the safe plant production and organic agricultural practices utilizing the pomelo garden as a classroom

Methodology

1. Research Methodology

In this study, this research is the applied research in order to develop the learning process of farmers utilizing the integrated procedure between the organic farming subject and the academic service in the aspects of cultivation and Khao Taeng Gua pomelo treatment. Additionally, the evaluation of learning consisted of the pretest and posttest in order to classify the farmers' knowledge.

2.Population

The population in this study were 31 farmers who cultivated Khao Taeng Gua pomelo in Chainat province in accordance with the recommendation from the provincial agricultural officers and the agricultural extension officers who were the key information in this study.

3. Instrument

The instrument in this study can be divided into two types as follows:

3.1 The knowledge procedure utilizing the pomelo garden as a classroom was integrated in accordance with the organic farming subject and the academic service in the aspect of Khao Taeng Gua pomelo cultivation.

3.2 The pretest and posttest consisted of 30 items which were the multiple choices in this study.

4. Data Collection

In this study, the data were collected as follows:

4.1 The researchers conducted the research objectives and investigated the theories and related documents and designed the group discussion based on the specific issue.

4.2 The researchers gathered the data from the farmers who cultivated Khao Taeng Gua pomelo garden as the key information, recommending from the provincial agricultural officers and the agricultural extension officers.

4.3 The researchers conducted the meeting for the provincial agricultural officers in order to develop the learning process utilizing the pomelo garden as a classroom and integrated the organic farming subject together with the academic service according to cultivate Khao Taeng Gua pomelo.

4.4 The researchers coordinated the learning process based on the specific model.

4.5 The researchers summarized the conclusion of the research.

5. Data Analysis

The data of this study were analyzed in accordance with the conclusion from the development of the learning process and the learning outcome of the pretest and posttest. Accordingly, the descriptive statistics were mean, standard deviation and paired t-test.





Findings and Discussion

1. The outcome of the learning process development of farmers utilizing the pomelo garden as a classroom

Based on the learning process development of farmers utilizing the pomelo garden as a classroom, it is implemented in accordance with the organic farming subject that integrates with the management of Khao Taeng Gua pomelo cultivation. The outcome of the learning process is as follows:

1.1 The learning management process can be classified of one week, consisting of 15 times. It is consistent with the period in which Khao Taeng Gua pomelo produced.

1.2 The learning facility is determined from the area that is appropriate for learning in each week.

1.3 The instructors in this study are six village scholars and four academics who are the experts in the various aspects in each time. Similarly, the farmers gain knowledge from the experts who have the direct experience and are able to analyze and solve their problems.

1.4 In terms of analyzing and solving the problems, the farmers are interviewed concerning the problems that take place in the pomelo garden. Furthermore, the problems are analyzed and solved their problems by the farmers.

According to the outcome of learning process development, it is congruent with the organic farming subject that can be characterized into 15 times, which were:



 Table 1 The development of learning management procedure

Organic Farming Subject	Khao Taeng Gua pomelo learning management	Learning Outcome			
The classification of organic farming	The procedure for Khao Taeng Gua pomelo cultivation in organic farming	The farmers comprehend the procedure of Khao Taeng Gua pomelo cultivation.			
The area planning management	The area management/ The pruning procedure/ The weed disposal / The windproof tree planting	The pomelo garden management and the pest preventions in accordance with the wind			
The manufacturing and organic farming management	Manufacturing problems, improvement and soil analysis procedures	Problems in the region, analysis procedure and soil analysis procedure			
Factors affecting the manufacturing	External factors affecting the cultivation	The soil, weather, rain, drought and immense flood			
The natural utilization and organic farming procedure	The procedure of cultivation/ disease / insect and fertilizer	Khao Taeng Gua pomelo cultivation, diseases finding in the insects and the utilization of nourishing fertilizer			
	The utilization of herb pesticide (neem, chili, garlic)	The utilization of herbal plants as pesticides			
	Pesticide extract and bio - fermentation	How to generate the pesticide extract and bio- fermentation			
	Soil nutrient management procedure	How to generate the appropriate soil pH in accordance with the needs of Khao Taeng Gua pomelo			
	The utilization of natural care	The utilization of natural fungi			
	Special Fertilizer	The utilization of organic fertilizers for the urgent nourishment			
	Ant, aphid and honeycomb management	The elimination procedure of ant, aphid and honeycomb in the garden			
The organic product certification	The harvesting procedure, the storage life and the product certification	The proper harvest method, the appropriate storage life and the product certification			
The organic farming requirement	The organic farming and GAP requirement	The Khao Taeng Gua pomelo requirement compiles with the organic farming requirement as well as Khao Taeng Gua pomelo procedure to acquire the GAP.			
Marketing and organic farming business	Marketing management and Khao Taeng Gua pomelo business	The current marketing procedure and sales			



Organic Farming Subject	Khao Taeng Gua pomelo learning management	Learning Outcome
The trend of organic farming market	The trend of Khao Taeng Gua pomelo and the farmers' blood test by doctors	The trend of Khao Taeng Gua pomelo in the future and the farmers' blood test

The findings of the study reveal that the farmers enable to apply and change the behavior of the safe plant production after finishing the learning process. In addition, the farmers who start cultivating enable to take care of the strong pomelo in accordance with the improved product at least 10 percent, reducing the chemical and enhancing the better quality of life due to the outcome of the farmers' blood test from the risk farmers. Based on the findings, the farmers enable to produce the safe pomelo and develop the organic pomelo. Also, the learning management outcome from the knowledge is as follows:

 Table 2 The knowledge provided from the learning management outcome





This result is related to Umpote's (2011) study which refers to the principle of selecting in the training approach. For the group technique in accordance with the subject's objectives, it was appropriate for the participants who had the knowledge and experience concerning the previous aspects of training. Regarding the speaker- centered approach, it was associated with the participants to gain knowledge and understanding. On the contrary, the participant-centered approach was implemented in accordance with the participants in order to alter their attitudes, competences and skills. Similarly, the group-centered approach was concerned about the long training period in the seminar.

2. The outcome of the pretest and posttest of the farmers utilizing the pomelo as classroom

According to the pretest and posttest of the farmers utilizing the pomelo as a classroom, the findings show that the pretest and posttest consisted of 30 items which were the multiple choices in this study and the outcomes were as follows:

Table 3 The result of pretest and posttest		
The Items of the farmer test	Pretest	Posttest
1.The basic need of Pomelo (7 items)	4.76	5.96
2. The utilization of the herb as the pesticides (7 items)	2.21	4.25
3. The harvest procedure & GAP requirement (8 items)	5.44	7.29
4. The Soil nutrient management (8 items)	5.68	6.89

Table 3 illustrates the result of the pretest and posttest. In terms of the soil nutrient management, it can be found that the highest average is at 5.68 while the harvesting procedure & GAP requirement is at 5.44. In addition, the basic need of pomelo is at 4.76 and the least average is the utilization of the herb as the pesticides ($\bar{x} = 2.21$).

According to the posttest, it can be noted that the harvesting procedure & GAP requirement is the highest average ($\bar{x} = 7.29$) whereas the second average is the soil nutrient management ($\bar{x} = 6.89$). Moreover, the basic need of pomelo is at 5.96 and the least average is the utilization of the herb as the pesticides ($\bar{x} = 4.25$)

Table 4 The comparison result score of the participants

	Pre	Post	ttest			
Testing	\overline{x}	S.D.	\overline{x}	S.D.	t	р
Learning Test Results	18.09	5.16	24.39	3.17	-6.502	0.000

As shown in Table 4, the result score of the pretest and posttest, it can be found that the mean score of pretest was 18.09, whilst the mean score of the posttest was 24.39. In other words, the farmers had more knowledge than before the training. Hence, there was a statically significant mean difference between the pretest and posttest at the significant level of 0.05. To conclude, the result score of the evaluation of knowledge found that the farmers have a low level of knowledge concerning the nutrient testing whereas the other items were at the high level.

Based on the learning achievement, it found that the farmers should have the knowledge of the nutrients, the herbal substance preventing the disease, the harvesting procedure and the appropriateness of the soil maintenance. This finding is similar to Arayakarn's study and her pioneers (2010), this study revealed that the pest can be found from the farmers are as follows: thrips, scale insects, leafworms, borer worms, fungus, water



fleas, broad mite and citrus canker. At this point, the curriculum was implemented by the researchers. It can be classified into 4 sections: 1) Background 2) Cultivation and Treatment 3) Diseases and Insects, and 4) Herbal substances Utilizing for the pest control. According to the achievement assessment of the farmers, it can be found that there was statically significant the comparison result score between before and after the training at significant level of 0.05



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4_Paper18

Assessing Superiority of the Learning Effectiveness in the Three-Arm Design in the Presence of Heteroscedasticity

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ABSTRACT

According to the goal of teaching, students' learning performance is broadly divided into three areas: knowledge, skills and attitudes. The most commonly used indicator for assessing learning effectiveness in the knowledge area is the average score of learning. In order to compare the learning performance of students in three teaching methods, we try to use superiority test of the three-arm design to assess the learning outcomes of students. The objective of a superiority test is to establish the efficacy of an experimental group, and compare it to that of the reference group, to see whether the difference exceeds some prespecified margin. In this study, assuming normality and under the assumption that the variances of experiment, reference and standard groups are heteroscedasticity, we use the Fieller's method and the bootstrap method to facilitate superiority test for assessing learning effectiveness of the three-arm design. Through an intensive simulation study, the Fieller's method is shown to have satisfactory performance. It not only adequately controls empirical size at the nominal level, but also is uniformly more powerful than those of the bootstrap method. Accordingly, the Fieller's method can be recommended for routine applications. Finally, the real data set is given to illustrate the methods.

Keywords : Superiority Test, Fieller's Method, Bootstrap Method.







Introduction

According to the goal of teaching, students' learning performance is broadly divided into three areas: knowledge, skills and attitudes. The most commonly used indicator for assessing learning effectiveness in the knowledge area is the average score of learning. Traditionally, analysis of variance was used to compare the learning outcomes of students with different teaching methods. In this study, in order to compare the learning performance of students in three teaching methods, we try to use superiority test of the three-arm design to assess the learning outcomes of students.

The three-arm design usually consists of the experimental, reference and the standard groups, respectively. The objective of a superiority test is to establish the efficacy of an experimental group, compared to the reference group, is exceed some prespecified superiority margin. (D'Agostino et al.,2003; Hauschke & Pigeot, 2005; Zhong et al., 2018; Adjabui et al., 2019). In the three-arm design, the comparison for the ratio of the mean difference between experimental group and standard group to that between reference and standard groups is importance in superiority test (Pigeot et al., 2003, Hasler et al., 2008, Chang et al., 2014). The testing problem on the ratio of the differences in means was first formulated in Pigeot et al. (2003). Under the normality assumption and variance homogeneity, Pigeot et al. (2003) derived a statistical test procedure based on Fieller's confidence interval (Fieller, 1954). Furthermore, Pigeot et al., 2003 also considered a bootstrap percentile interval instead of the Fieller's method in case that the assumption of normality did not hold. Additionally, under the variance heteroscedasticity assumption, Hasler et al. (2008) derived a testing procedure by using the Fieller's method. In addition, when the data come from two treatment groups, Chen et al. (2015) conducted a cost-effectiveness which estimates the incremental cost-effectiveness ratio and its confidence interval based on the Fieller's method. Moreover, Mahmoudi et al. (2017) constructed Fieller's confidence interval for the ratio of means in two independent populations.

The superiority test of the three-arm design is mostly applied in the biomedical field, it is rarely used in the field of educational research. In this study, assuming normality and under the assumption that the variances of experiment, reference and standard groups are heteroscedasticity, we try to use the Fieller's method and the bootstrap method to facilitate superiority test for assessing learning effectiveness of the three teaching methods in the three-arm design. And thus, the purpose of this study is to assess the effectiveness of the experimental teaching method over the reference teaching method by using the superiority test of the three-arm design. The rest of this article is organized as follows. In Section 2, we introduce the procedure for the superiority test of the three-arm design by using the bootstrap and Fieller's methods. Section 3 conducts two empirical simulation studies and discusses the results. The methods are illustrated with a numerical example in Section 4. Finally, we provide some conclusions and final remarks in Section 5.

Statistical test methods

Let $X_{E,i}, X_{R,j}, X_{S,k}$ denote the grade of student with different teaching methods for experimental groups, reference groups and standard groups, respectively. Suppose that these random variables are mutually independent and normally distributed with means μ_E , μ_R and μ_S , and unknown variances σ_E^2 , σ_R^2 and σ_S^2 , respectively. That is, $X_{E,i} \sim N(\mu_E, \sigma_E^2), i = 1, ..., n_E$; $X_{R,j} \sim N(\mu_R, \sigma_R^2), j = 1, ..., n_R$; and $X_{S,k} \sim N(\mu_S, \sigma_S^2), k = 1, ..., n_S$. The sample sizes n_E , n_R and n_S are not necessarily assumed to be equal. Without loss of generality, the higher scores represent the better learning outcomes. First of all, the statistical testing problem for comparing the experimental group with reference group is given by

$$H_0: \mu_E - \mu_R \le \delta_0 \quad v.s. \quad H_1: \mu_E - \mu_R > \delta_0$$



where δ_0 is a relevant superiority threshold. For $\theta_0 \in (0,1)$, Pigeot et al., 2003 specified δ_0 as a proportion of the difference between population means μ_E and μ_R by $\delta_0 = (\theta_0 - 1)(\mu_R - \mu_S)$. Rewriting the hypothesis based on the ratio of the differences in means is

$$H_0: \frac{\mu_E - \mu_S}{\mu_R - \mu_S} \le \theta_0 \quad v.s. \quad H_1: \frac{\mu_E - \mu_S}{\mu_R - \mu_S} > \theta_0 \tag{1}$$

where θ_0 represents the effectiveness threshold. Furthermore, Hasler et al., 2008 allowed $\theta_0 \in (0, \infty)$, it means that the result of experimental group could achieve an effectiveness over 100%. This represents that the experimental group has actual superiority over reference group. For the statistical test procedure in equation (1), we try to use the bootstrap method and the Fieller's method to test hypothesis. We introduce the bootstrap and the Fieller's methods as follows.

1. Bootstrap method

The bootstrap method (Efron & Tibshirian, 1993) has become a widely used technique for testing hypothesis and constructing confidence interval, particularly when either the underlying distribution is not normal or the distribution of sample statistic is not feasible to derive. The bootstrap method can be simply adopted to the case of variance heterogeneity as follows.

Step1: Let $\mathbf{x}_E = (x_{E,1}, \dots, x_{E,n_E})$, $\mathbf{x}_R = (x_{R,1}, \dots, x_{R,n_R})$ and $\mathbf{x}_S = (x_{S,1}, \dots, x_{S,n_S})$ denote the observation value that is the grade of student with different teaching methods for experimental group, reference group and standard group, respectively. Generate a bootstrap sample $\mathbf{x}^{*b} = (\mathbf{x}_E^{*b}, \mathbf{x}_R^{*b}, \mathbf{x}_S^{*b})$ from the original sample $\mathbf{x} = (\mathbf{x}_E, \mathbf{x}_R, \mathbf{x}_S)$ with sample sizes n_E , n_R and n_S , respectively.

Step2: Calculate

$$\hat{\theta}^{*b} = \frac{\overline{x}_E^{*b} - \overline{x}_S^{*b}}{\overline{x}_R^{*b} - \overline{x}_S^{*b}}$$

Step3: Repeat Steps 1 and 2 for b = 1, ..., B. Here B denotes the number of bootstrap samples.

Step4: The $(1-\alpha)$ lower confidence limit for $\theta = (\mu_E - \mu_S)/(\mu_R - \mu_S)$ is estimated by the $\alpha \times 100\%$ quantile of the collection of the *B* realized values of $\hat{\theta}^{*b}$. Let $L_{\hat{\theta}^{*b}}$ denote the estimate value of the lower confidence limit for θ . Then, the superiority is claimed if $L_{\hat{\theta}^{*b}} > \theta_0$. In other words, the experimental group has actual superiority over reference group if $L_{\hat{\theta}^{*b}} > \theta_0$.

2. Fieller's method

Assuming normality and under the assumption that the variances of experiment, reference and standard groups are heteroscedasticity, Hasler et al., 2008 derived the confidence interval for $\theta = (\mu_E - \mu_S)/(\mu_R - \mu_S)$ by using the Fieller's method (Fieller, 1954). We can apply the lower confidence limit for θ to test hypothesis in equation (1). Let \bar{X}_E , \bar{X}_R and \bar{X}_S denote the sample means of experimental group, reference group and standard group, respectively. Also, let S_E^2 , S_R^2 and S_S^2 be the corresponding sample variances, respectively. Then, the $(1-\alpha)$ lower confidence limit



for $\theta = (\mu_E - \mu_S)/(\mu_R - \mu_S)$ is given by

$$\hat{\theta}_{L} = \frac{D_{E}D_{R} - Y_{S} - \sqrt{\left(D_{E}D_{R} - Y_{S}\right)^{2} - \left(D_{R}^{2} - Y_{R} - Y_{S}\right)\left(D_{E}^{2} - Y_{E} - Y_{S}\right)}}{D_{R}^{2} - Y_{R} - Y_{S}}$$
(2)

where
$$D_E = \overline{X}_E - \overline{X}_S$$
, $D_R = \overline{X}_R - \overline{X}_S$, $Y_E = \frac{t_{1-\alpha}^2 \left(\hat{v}^{het}\right)}{n_E} S_E^2$, $Y_R = \frac{t_{1-\alpha}^2 \left(\hat{v}^{het}\right)}{n_R} S_R^2$, $Y_S = \frac{t_{1-\alpha}^2 \left(\hat{v}^{het}\right)}{n_S} S_S^2$. Also,

$$\hat{v}^{het} = \frac{\left(\frac{1}{n_E}S_E^2 + \frac{\theta_0^2}{n_R}S_R^2 + \frac{(1-\theta_0)^2}{n_S}S_S^2\right)^2}{\frac{1}{n_E^2(n_E-1)}S_E^4 + \frac{\theta_0^4}{n_R^2(n_R-1)}S_R^4 + \frac{(1-\theta_0)^4}{n_S^2(n_S-1)}S_S^4}$$

and $t_{1-\alpha}(\hat{v}^{het})$ denotes the $(1-\alpha) \times 100\%$ quantile of Student *t* distribution with \hat{v}^{het} degrees of freedom.

For a given significance level α , we reject H_0 of equation (1) and conclude superiority of the experimental group over the reference group if $\hat{\theta}_t > \theta_0$.

Simulation study

The simulation study includes two scenarios in this section. The first simulation takes aim to examine finite samples properties of the Fieller's method and the bootstrap method. The empirical type I error rate from the Fieller's method is compared with those from the bootstrap method in first simulation. The second simulation aims to assess the performance of power for the Fieller's method in comparison with those of the bootstrap method.

1. Empirical type I error rate

The superiority limit is first fixed at $\theta_0 = 1.25$ in this study. For exploring empirical type I error rate, we consider the following two cases: (i) $\Delta = \mu_R - \mu_S = 12$; and (ii) $\Delta = \mu_R - \mu_S = 15$. To investigate the impact of sample sizes, we allocate 1:1:1 of the total sample size n for experimental group, reference group and standard group, respectively. The total sample sizes are set to be n=45, 90 and 120. Also, the population means of reference and standard groups, (μ_R, μ_S) are set to be (80,68) and (80,65), respectively. For all cases, the population mean of experimental group is fixed at $\mu_E = \theta_0 \times \Delta + \mu_S$. Define $\tau_R = \sigma_R^2 / \sigma_E^2$ and $\tau_S = \sigma_S^2 / \sigma_E^2$. The τ_R and τ_S are set to be 0.5, 1.0, and 2.0, respectively. The variance of experimental group (σ_E^2) is fixed to be 100, the variances of reference group (σ_R^2) and standard (σ_S^2) group are equal to $\tau_R \times \sigma_E^2$ and $\tau_S \times \sigma_E^2$, respectively.

For each combination of specified parameters, the simulation data are independently generated 5000 times. In each simulated data set, we estimate the empirical sizes for each method. Under the nominal significance level of 0.05, the empirical size is computed by the proportion of the 5000 simulated p-values that are less than 0.05. Furthermore, if a testing procedure can adequately control the size at the 0.05 nominal level, then the empirical sizes should be within 0.0440 and 0.0560 under 95% confidence level. Note that 5000 times of Monte-Carlo simulations for the Fieller's method and 5000 bootstrap samples for bootstrap method are applied for each data set. We display the simulation results in Tables 1 and 2.



The ranges of empirical sizes of the Fieller's method are (0.0490, 0.0506) and (0.0490, 0.0510) for cases (i)-(ii), respectively. There are all of 54 empirical sizes of Fieller's method falling between 0.0440 and 0.0560. Most of them are quite close to the nominal value of 0.05.

On the other hand, the corresponding ranges of the bootstrap method are (0.0072,0.0628) and (0.0212,0.0612) for cases (i)-(ii), respectively. There are only 31 out of 54 (57.4%) empirical sizes within 0.0440 and 0.0560. The bootstrap method seems to be quite conservative, especially when τ_s

is equal to 2. As a result, we conclude that the Fieller's method, compared to the bootstrap method, is capable of maintaining type I error rate close to the nominal level.

Δ	$\tau_R = \sigma_R^2 / \sigma_E^2$	$\tau_{s} = \sigma_{s}^{2} / \sigma_{E}^{2}$	n	Fieller's Method	Bootstrap Method
12	0.5	0.5	45	0.0490	0.0628
			90	0.0496	0.0532
			120	0.0494	0.0464
	//	1.0	45	0.0502	0.0596
			90	0.0506	0.0520
			120	0.0496	0.0496
		2.0	45	0.0500	0.0248
			90	0.0502	0.0508
			120	0.0504	0.0560
	1.0	0.5	45	0.0496	0.0456
			90	0.0502	0.0508
			120	0.0504	0.0592
		1.0	45	0.0494	0.0408
			90	0.0498	0.0520
	100		120	0.0500	0.0560
		2.0	45	0.0496	0.0168
			90	0.0500	0.0432
			120	0.0504	0.0472
	2.0	0.5	45	0.0492	0.0204
			90	0.0498	0.0496
		N S /A	120	0.0500	0.0504
		1.0	45	0.0500	0.0128
			90	0.0502	0.0352
			120	0.0504	0.0452
		2.0	45	0.0494	0.0072
			90	0.0500	0.0244
			120	0.0502	0.0352

Table 1: The empirical sizes for case (i).

Table 2: The empirical sizes for case (ii).

Δ	$\tau_R = \sigma_R^2 / \sigma_E^2$	$\tau_{s} = \sigma_{s}^{2} / \sigma_{E}^{2}$	n	Fieller's Method	Bootstrap Method
15	0.5	0.5	45	0.0510	0.0612
			90	0.0502	0.0556
			120	0.0500	0.0524
		1.0	45	0.0500	0.0608
			_447		



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		90	0.0496	0.0544
		120	0.0498	0.0544
	2.0	45	0.0494	0.0496
		90	0.0502	0.0544
		120	0.0508	0.0552
1.0	0.5	45	0.0496	0.0492
		90	0.0502	0.0536
		120	0.0504	0.0562
	1.0	45	0.0501	0.0512
		90	0.0504	0.0576
		120	0.0506	0.0616
	2.0	45	0.0498	0.0308
		90	0.0502	0.0532
		120	0.0504	0.0576
2.0	0.5	45	0.0494	0.0372
		90	0.0500	0.0536
///		120	0.0504	0.0552
	1.0	45	0.0500	0.0332
		90	0.0502	0.0528
11		120	0.0504	0.0552
	2.0	45	0.0490	0.0212
		90	0.0498	0.0356
		120	0.0502	0.0500

2. Empirical power

In this simulation, we consider the two cases for $\Delta = \mu_R - \mu_s = 12$ and $\Delta = \mu_R - \mu_s = 15$, respectively. The total sample size is fixed at n = 45,90 and 120. We compare the performance of the Fieller's method with the bootstrap method. We choose the same settings of the simulation parameters as those in first simulation. The resulting empirical power curves are displayed in Figures 1 and 2.

In $\Delta = \mu_R - \mu_S = 12$, the Figure 1 shows that the Fieller's method appears to be more powerful than the bootstrap method, particularly when the sample is the small sample. In addition, the bootstrap method can improve its performance of power as the total sample size *n* increases. When the sample sizes are large, the performances of empirical size and empirical power by using the bootstrap method are as good as by using the Fieller's method.





Figure 1: Empirical power functions for sample sizes $n_E = n_R = n_S = 15,30,40$, $\Delta = 12, \theta_0 = 1.25$ and $\alpha = 0.05$.

In Figure 2, the performances of two methods are similar when the mean difference and the total sample size both get large ($\Delta = 15$ and n = 120). Furthermore, through the simulation study, when the total sample size increase and the mean difference between reference and standard groups are large, the performance of the bootstrap method is as good as that of the Fieller's method.



Figure 2: Empirical power functions for sample sizes $n_E = n_R = n_S = 15,30,40$, $\Delta = 15, \theta_0 = 1.25$ and $\alpha = 0.05$.

Numerical Example

This example takes the learning outcomes with different badminton teaching methods form the



students of the resource class in elementary school. These data are taken from Wu et al., 2006. In this example, the learning outcomes with different badminton teaching methods are including the command, the practice and the reciprocal methods, respectively. For the comprehensive processes of the experiment, the readers are referred to the reports by Wu et al., 2006. This sets of data contain 51 students where $n_E = 17$, $n_R = 17$ and $n_S = 17$, respectively. The p-values of the Shapiro-Wilk normality test of the residuals for the experimental, reference and standard groups are 0.9846, 0.4198 and 0.7892, respectively. Therefore, the sets of data follow the assumption of normal distribution. The summary statistics results are given in Table 3.

rable 5. Summary statistics results for the data set							
group	Mean	Standard Deviation	Minimum	Maximum			
Experimental group (The Command Method)	65.88	11.13	45	88			
Reference group (The Practice Method)	64.82	11.54	49	93			
Standard group (The Reciprocal Method)	55.35	10.01	37	80			

Table 3: Sur	nmary statistic	s results for	the data set
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The θ_0 is chosen as 1.25, namely, if the learning outcomes of experimental group (the command method) achieve more than 125% of the learning outcomes of reference group (the practice method), then the learning outcomes of experimental group (the command method) can be claimed superiority. The lower 5% confidence limits for $(\mu_E - \mu_S)/(\mu_R - \mu_S)$ by using the Fieller's method and the bootstrap method are obtained as 0.5243 and 0.5424, respectively. The results of the two methods are quite similar and are all less than $\theta_0 = 1.25$, hence the superiority of experimental group (the command method) to the reference group (the practice method) cannot be supported at the significance level of $\alpha = 0.05$.

Conclusions and Remarks

In this study, we use the Fieller's method and the bootstrap method to facilitate superiority test for assessing learning effectiveness of the three teaching methods in the three-arm design. Assuming normality and under the assumption that the variances of experiment, reference and standard groups are heteroscedasticity, through the simulation study, the Fieller's method not only maintains the type I error rate close to the nominal level, but also provides sufficient power. Therefore, the Fieller's method provides a different method from the analysis of variance to assess learning effectiveness of the three teaching methods.

Moreover, one limitation of the Fieller's method is that we require normality assumption on experimental, reference and standard groups, respectively. If this assumption is violated, we can use the bootstrap method to assess superiority of the learning effectiveness in the three-arm design in the presence of heteroscedasticity.

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4_Paper22

University Lecturers' Understanding of Formative and Alternative Assessment

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ABSTRACT

This study aims to investigate university lecturers' understanding about the purpose and characteristics of assessment, formative assessment, and alternative assessment. The study was a case study involving nine in-service university lecturers who answered open-ended questions. The study found that the respondents' understanding of the purpose of assessment can be categorized into three categories which are, to assess understanding, to evaluate learning outcomes and to evaluate the learning domain. Therefore, the lecturers understand that formative assessment is a continuous process and it provides feedback to improve performance rather than grading. The characteristics of alternative assessment given by respondents is a wide range of evaluation, multilevel and multidisciplinary.

Keywords: Formative Assessment, Alternative Assessment, Learning Outcomes





Introduction

In the 21st century, education is a key component in uplifting the standards of knowledge and skills of an individual and society at large. The United Nations Development Programme lists 'Quality of Education' as the fourth goal in its Sustainable Development Goals (SDG). Therefore, to ensure all people enjoy peace and prosperity, education must be emphasised and improved on through continuous research and education policy changes to adapt to the rapid globalisation and modernisation every nation faces.

One of the most important issues facing the education sector in Malaysia is the issue of assessment techniques. The role of assessment as a part of teaching and learning is essential to gather reliable information. According to Cizek (1997), assessment is defined as a planned process for gathering and synthesizing information relevant to the purposes of discovering and documenting students' strengths and weaknesses, planning and enhancing instruction that is appropriate given the student's learning needs, or making recommendations related to educational goals for a student. Therefore, assessment draws the informed judgments about the learner progress against the task criteria as well as to provide the feedback for both educators about how they teach and the students about how the learn. More specifically, assessment is the ways instructors gather data about their teaching and their students' learning (Hanna & Dettmer, 2004). There are three main assessment techniques currently used, which are summative assessment, formative assessment and alternative assessment.

Historically, education systems in many countries around the world use summative assessments as the primary form of assessment because of the valid and highly dependable scores that summative assessments provide (Cizek, 2010). However, educators, policy makers and researchers are becoming more enthusiastic about formative assessments as a way to bridge the gap between classroom practices and large-scale assessments (Cizek, 2010). The term 'formative evaluation' was first introduced by Scriven (1967) in a volume of the AERA's Monograph Series on Curriculum Evaluation, then popularized by Benjamin Bloom (1971) in the Handbook of Formative and Summative Evaluation of Student Learning. Defining the formative assessment can be broadly defined as a form as assessment that focuses on the process of learning for improvement of the students' performance. One of definition about formative assessment is from Bloom et al. (1971). According to Bloom et al.:

"Formative evaluation is for us the use of systematic evaluation in the process of [emphasis added] curriculum construction, teaching and learning for the purpose of improving any of these three processes. This means that in formative evaluation one must strive to develop the kinds of evidence that will be most useful in the process, seek the most useful method of reporting evidence, and search for ways of reducing the negative effect associated with evaluation- perhaps by reducing the judgmental aspects of evaluation or, at least, by having the users of the formative evaluation (teachers, students, curriculum makers) make the judgements." (1971, p.118)

Therefore, from Bloom et al. (1971), using formative evaluation helps to improve the process of curriculum construction, teaching and learning. In line with Bloom, Popham (2008) has defined the formative assessment as a planned process during which the teacher or students use the assessment-based on the evidence to adjust ongoing leaning and instruction. It can be concluded that formative assessment provides feedback and information during the instructional process, while learning is taking place, therefore, it measures both educators and students' progress. Additionally, Taras (2005) indicated that to be formative, assessment requires feedback indicating the existence a gap between the actual level of work-being assessed and the required standard. Bloom also implied the typical characterization of formative assessments as having a lack of an evaluation aspect through the avoidance of assigning any consequences to the participants of the assessment such as penalties or grades (Cizek, 2010). Besides that, the current conception of formative assessments is that it is usually done at the classroom level and should be student-centred. There are several examples of formative assessment such as observation during in-class activities, homework exercises, question and answer sessions, conferences between teacher and student, in-class activities where students informally present their results, and student feedback collected by periodically answering specific question. (Justscience, 2019).

Furthermore, Cizek (2010) identified ten characteristics of formative assessments which are: a) Requires students to take responsibility for their own learning, b) Communicates clear, specific learning goals, c) Focuses on goals that represent valuable educational outcomes with applicability beyond the learning context,



d) Identifies the student's current knowledge/ skills and the necessary steps for reaching the desired goals, e) Requires development of plans for attaining the desired goals, f) Encourages students to self-monitor progress towards the learning goals, g) Provides examples of learning goals including, when relevant, the specific grading criteria or rubrics that will be used to evaluate the student's work, h) Provides frequent assessment, including peer and student self-assessment and assessment embedded within learning activities, i) Includes feedback that is non-evaluative, specific, timely, related to the learning goals, and provides opportunity for the student to revise and improve work products and deepen understandings, and j) Promotes metacognition and reflection by students on their work. Even though, not all of the characteristics must be presented for an assessment to be considered formative, each characteristics has been identified for its potential to maximize the achievement, development, and instructional benefits of this type of assessment.

In addition, one of assessment which has grown rapidly during the 1990s is the alternative assessment. According to Gronlound and Waugh (2009), alternative assessment is defined as performance assessment that emphasizes that these assessment methods provide an alternative to traditional paper-and-pencil testing. Alternative assessment is also known as performance or authentic assessment, which determined what students can do and cannot do. It measures applied proficiency more than it measures knowledge. This assessment can help educators determine how well learning outcomes have been achievement. The essence of alternative assessment is that students are given the opportunity to demonstrate their ability, perform a meaningful task, and receive feedback by a qualified person in terms of relevant criteria. Any method of finding out what a student knows or can do that is intended to show growth and inform instruction and is alternative to traditional forms of testing, namely, multiple-choice tests.

Alternative assessment includes students' portfolios, project work, and other activities grading with some type of rubric. Brown (2004) revealed some characteristics of alternative assessments include: a) Require students to perform, create, produce, or do something, b) Use real-world contexts or simulations, c) Assess students on what they do in class every day, d) Focus on processes as well as products, e) Higher-level thinking and problem-solving skills, f) Provide information about students' strengths and weaknesses, and g) Use human judgment in scoring.

In conclusion, both formative and alternative assessments are another form of assessment compared with the traditional summative assessments which have dominated the field of education in the past. The growing interest in these forms of assessments show a positive change to a more continuous and practical form of assessment in classrooms.

Objectives

The main objective of this study is to explore the understanding of formative and alternative assessment among university lecturers. In addition, it also aims to investigate the understanding of lecturers about assessment, to study the understanding of lecturers about formative assessment, as well as to examine the understanding of lecturers regarding alternative assessment.

Methodology

This is a qualitative case study based on interviews of nine in-service lecturers from a public university in Malaysia. The lecturers from the various faculties were selected to uncover their understanding of formative and alternative assessment. The interviewees' faculty and years in teaching are shown in Table 1. The range of their teaching experience is from less than a year to nineteen years. A small number of participants were decided as the aim of conducting the descriptive qualitative study is to understand the depth of their understanding. All lecturers were interviewed using three open-ended questions regarding understanding towards assessment, understanding towards formative assessment, and understanding towards alternative assessment. All interview data were transcribed and analysed.



Table 1

Respondent	Faculty	Years in teaching	
R1	Medicine and Health Sciences	9	
R2	Human Ecology	10	
R3	Biotechnology and Biomolecular Science	9	
R4	Medicine and Health Sciences	19	
R5	Medicine and Health Sciences	7	
R6	Modern Language and Communication	6	
R7	Modern Language and Communication	10	
R8	Environmental Studies	2	
R9	Engineering	Less than one year	

Findings and Discussions

From the findings above, the perspectives among lecturers towards understanding of assessment are categorized into three which are understanding of lecturers about assessment, understanding about formative assessment, as well as to examine the understanding of lecturers regarding alternative assessment.

1. Understanding towards Assessment

Assessment plays an important role in the process of learning and teaching. Therefore, educators should understand well what is the role of assessment itself. From the respondents' view, there are six ways that they understand towards assessment. Two of them assumed the assessment as a way to assess students' understanding. This is proven by sample R1 and R2 statement:

"To assess the understanding of a particular subject." (R1)

"On how do we assess students in the classroom to ensure their understanding." (R2)

Beside that, other perspectives by sample R3, R6, and R8 assumed that assessment is a way to evaluate, it is stated as:

"Assessment is a way to evaluate someone randomly." (R3)

"Evaluation of student performance, based on the learning outcomes." (R6)

"Evaluation, by qualitative and quantitative." (R8)

In aligned with R3, R6, and R8, furthermore, R5 added that assessment is used to differentiate between the good and poor learners, proven by statement below:

"A method to evaluate whether we have achieved the learning outcome or not. To discriminate good and poor learners." (R5)

More understanding towards assessment is stated by R4, which is to monitor progress. This is proven by R4's statement:

"A tool to monitor progress of the students' capability in understanding the course content." (R4)



Furthermore, sample R7 believed that assessment is to assess current knowledge and determine future needs. In addition, sample R9 viewed assessment as a process of assessing the students' cognitive knowledge and psychomotor. This is proven by R7 and R7 statement as below:

"Assessing present knowledge. Assessing what needs for future. Assessing what he/ she does not know still." (R7)

"Process of assessing the students' cognitive knowledge, psychomotor." (R9)

In a nutshell, according to nine in-service lecturers who has been interviewed, they understand assessment as a way to assess students' understanding, to evaluate students' performance based on the learning outcomes by qualitative and/ or quantitative technique. Another understanding toward assessment by lecturers is to differentiate the good and poor learners, to monitor students' progress, as well as to assess present cognitive and/ or psychomotor knowledge; also assessment is a way to determine future needs.

2. Understanding towards Formative Assessment

To investigate lecturers' understanding towards formative assessment, the respondents were asked regarding their views towards formative assessment. The lecturers understand formative assessment by two ways, which are continuous assessment and testing. This is proven by samples R5, R6 and R7 statements below:

"Usually it is done in the middle of the course, not for grading but usually to provide feedback to learners to improve performance/ competencies." (R5)

"Assessment followed by feedback and student performance is not graded." (R6)

"On-going assessment." (R7)

Samples R5, R6 and R7 viewed formative assessment as continuous assessment and have common examples such as providing feedback and on-going assessment done with a focus on improving performance rather than grading. Meanwhile, samples R8 and R9 viewed formative assessment as a method of assessment that contains quizzes, tests and exams. As samples R8 and R9 stated below:

"Formatted assessment such as tests/ examinations." (R8)

"For example; test, quiz. Assessment in the traditional format." (R9)

Therefore, there are many ways that lecturers understand regarding formative assessment, which are continuous assessment, testing, providing feedback and on-going assessment. Formative assessment also focuses on improving performance. It also contains quizzes, tests, and exams.

3. Understanding towards Alternative Assessment

To examine the understanding regarding alternative assessment, lecturers were asked about their knowledge about alternative assessment. Some of them only answered the definition of alternative assessment, some answered regarding its characteristics. Most lecturers understand alternative assessment as other forms of assessment. This view is held by samples R1, R5, R6, R7, R8 and R9. They shared their views on alternative assessments such as:

"Other ways to assess a student compare to the usual way by exams." (R1)

"Other than pen and paper assessment (written). Performance-based?" (R5)

"Assessment that is in addition to the examination." (R6)

"Other forms of assessment." (R7)

"Assessment that involving wide range of evaluation via summative or formative." (R8)

"Other than formative assessment such as assessing role play, games." (R9)



The characteristics of alternative assessment given by respondents including wide range of evaluation and multilevel and multidisciplinary. This is stated by samples R3 and R4 below:

"Alternative assessment is an assessment to gain some other information that cannot be covered using formative assessment (Maybe in scope of more subjective side)- something difficult to be objectively measured." (R3)

"Tools that assess multilevel and multidiscipline of subject matter." (R4)

Alternative assessment is viewed as other ways to assess learners; it means that it is different than exams. Specifically, alternative assessment is performance-based assessment, it is tool that assesses multilevel and multidiscipline of subject matter. Based on one of the respondents, alternative assessment gains more information rather than formative assessment, due to something difficult to be objectively measured.

Conclusion

In conclusion, based on the findings of the study, the respondents' understanding of the purpose of assessment can be categorized into three which are to assess understanding, to evaluate learning outcomes and to evaluate the learning domain. The lecturers understand that formative assessment is a continuous process and it provides feedback to improve performance rather than grading. The characteristics of alternative assessment given by respondents are it is a wide range of evaluation, multilevel and multidisciplinary. How the lecturers understand formative assessment will influence the way they implement these assessment.

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Investigating the Effects of Interdisciplinary Programs in a Research-Intensive University.

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ABSTRACT

This article aims to investigate the effects of interdisciplinary programs on student learning outcomes in a research-intensive university of southern Taiwan. We examined how student characteristics are associated with the intention to take disciplinary courses and how learning outcomes students taking interdisciplinary courses differ from those who are not taking. Quantitative method was employed to analyze data derived from institutional student record between 2013 and 2016 and survey questionnaires from Collegiate Outcomes of Learning Assessments (COLA) and the General Literacy and Core Competency (GLCC) Analytical techniques were employed in the study, including descriptive statistics, Analysis of Variance (ANOVA), and repeat-measurement t-test. Results revealed that students with interdisciplinary programs were associated with academic performance and learning motivation (including the self-efficacy, task value, and intrinsic goal orientation) compared to their counterparts, particularly in aesthetic and environmental literacy. Future research is needed to develop the measures of interdisciplinary programs on student learning.

Keywords: Learning Outcome, Student Success, Interdisciplinary Program





Introduction

Recently, the government has taken several initiatives related to improve teaching and learning in higher education. In particular, the project of Higher Education Sprout Project (HESP) (Ministry of Education, 2018) proposed by the Ministry of Education (MOE) calls for a strengthened effort in innovative teaching and learning in postsecondary education, especially for interdisciplinary programs at the undergraduate level. Higher educational institutions (HEIs) responding to the call and adopt an interdisciplinary approach into the curriculum design based on issues-based learning among different disciplines. This is clearly pressures on policy makers and institutional leaders for increased emphasis on the quality of teaching and learning in postsecondary settings, resulting in the trend toward competency-based education with regard to student learning outcomes (Higher Education Academy, 2015). Likewise, the United States National Academies (2005) called for the growth of interdisciplinary as the basis of broader undergraduate education, and the US National Science Foundation's Integrative Graduate Education and Research Traineeship (IGERT) program launched the program known as the Melbourne Model in 2007, simulating a more extensive interdisciplinary curriculum in postsecondary education (Fearn, 2009). To date, the level of interdisciplinary courses has increased rapidly in universities and colleges internationally and along the globe (Higher Education Academy, 2015). Thus, the context of international higher education makes examination of interdisciplinary learning and teaching in the present study timely and compelling.

The continued interest in interdisciplinary evolves the changing landscape in higher education, which also generates the need for the capacity for work and global citizens who are able to have holistic approaches to solve complex problems and deal with multitasks beyond graduation (Lattuca, Voigt, and Fath, 2004). Unlike a conventional and disciplinary basis, interdisciplinary studies requires more collaborations and communications across different disciplines, and the boundedness depends on the understanding of social and natural worlds with the shared epistemologies, methods and concepts as well as how they are correlated with each other (Klaassen, 2017). That is, students were taught interdisciplinary to integrate those foundations into a coherent framework to bear on the real-world issues (Modo and Kinchin, 2011). Arguments favoring interdisciplinary programs emphasize the need to integrate discrete disciplinary perspectives and seek a comprehensive view of student learning (Lattuca, Knight, Seifert, Reason, & Liu, 2017). Opponents consider interdisciplinary studies could impede student development in terms of disciplinary competencies unless they were first adequately schooled in the specific discipline to get the basic foundation knowledge (Lattuca et al., 2017).

As the issue of interdisciplinary learning and teaching becomes increasingly significant for HEIs preparing students for the labor market, only few studies have examined interdisciplinary learning outcomes in higher education (Higher Education Academy, 2015; Lattuca, Voigt and Fath, 2004; Pierrakos, Borrego, and Lo, 2007; Wright, 1992), which are tended to be limited to a single institution or qualitative method. As a result, empirical research exploring this issue is remarkably sparse. Through the perspective of institutional research, the purpose of interdisciplinary programs aims to cultivate the integration of knowledge among different disciplines and enhance critical thinking ability for the purpose of being able to do one's job beyond graduation (Ivanitskaya, Clark, Montgomery, & Primeau, 2002). In the past few years, the number of students who did interdisciplinary courses in Taiwan increased dramatically and some colleges and universities further launched the new program of interdisciplinary studies, such as National Sun Yat-sen University (NSYSU), etc.

To contribute to ongoing discussions of interdisciplinary programs with teaching and learning in the field of higher education, this study aims to gain an insight into the nature of interdisciplinary programs and develops an awareness of interdisciplinary thinking in students' professional practices. We examined whether and how variations of students' college experiences of interdisciplinary courses on learning outcomes drawing upon the institutional level student data for further analysis. In sum, the study addressed the following questions:

- 1. What is the status quo for students who took interdisciplinary courses on student learning?
- 2. How are learning outcomes of students majoring in interdisciplinary fields as opposed to those of students in discipline-based majors?
- 3. How are these factors associated with interdisciplinary programs and learning outcomes at the curricular and organizational level?



Definition

Interdisciplinary studies: We broadly defined interdisciplinary studies as the integration of knowledge from disparate disciplines based on an issue, theme, problem, region, institution, or idea, etc. Different disciplinary perspectives are incorporated into the course activities, and the form of interdisciplinary studies were not limited to be taught by a certain of organizational forms.

Interdisciplinary studies and student learning outcomes

In the literature, many different learning outcomes are investigated in the interdisciplinary studies' researches. Lattuca et al. (2017) investigated the impact of interdisciplinary studies on critical thinking, Positive Attitude Toward Literacy, and Need For Cognition by controlling the gender, educational aspirations, precollege academic ability, and precollege academic motivation. The results indicated that the interdisciplinary studies showed negative impact on the Need for Cognition and critical thinking. The results might relate to the precollege academic ability: the students who take the interdisciplinary studies has a higher level on entered college outcome than the others do. In addition, Lattuca et al. (2017) suggested that the other dimensions of motivation beyond the need for cognition should be determined in promoting intellectual growth among students in interdisciplinary programs. Based on the literature, the students learning outcomes including course score, learning motivation, and core competency are investigated in this study.

Analysis

The analysis entailed three phases. First, descriptive statistics were examined regarding student characteristics. Second, one-way analysis of variance (ANOVA) and repeated-measurement t-test were conducted to compare students had completed interdisciplinary studies as opposed to those who did not in learning performance measured by their required subjects, ranging from 2014 to 2016. The interdisciplinary studies of NSYSU launched in 2013, which is composed of 65 programs and approximately 200 students enrolled in the programs every semester. Third, we integrated student survey questionnaires from the General Literacy and Core Competency (GLCC) and the Collegiate Outcome Learning Assessment (COLA) to examine learning outcomes for both groups employing ANOVA analytics. The students are divided into three groups: the students who had completed the interdisciplinary program (CI-students), the students who had not completed the interdisciplinary program (NTI-students).

<u>Results</u>

The descriptive statistics showed that the numbers of student who did not take the program are much more than the students who take the program. The numbers of student who has completed the program are close to the students who had not completed the program yet. The COLA and the GLCC survey has different effective response rate. The analysis for GLCC is focused on 2016 because the survey data is incomplete before 2016.

Students		Co	Completed the		Not completed the program			Do not take the		
Students			program	1		yet			program	l
Year		2014	2015	2016	2014	2015	2016	2014	2015	2016
Course score		249	197	121	209	172	109	3709	3823	4059
Learning	Self-efficacy	191	178	64	166	174	127	2450	2243	1389
motivation	Task value	191	177	63	166	174	127	2450	2239	1388
	Intrinsic goal orientation	191	177	63	166	174	127	2450	2237	1387
	Extrinsic goal orientation	191	176	63	166	174	127	2450	2236	1385
General Literacy and Core Competency		-	-	41	-	-	81	-	-	1185

Table 1. Descriptive Statistic



19th annual conference september 25-27, 2019 | Talwan Results revealed that students who had completed the program outperformed than as those who did not complete in academic performance (See Table 2). The main effects of the interdisciplinary program are significant for all analysis. The effect size (Omega square, ω^2) falls into the range from small (.01) to median (.06) size, then the post hoc are conducted to investigate the differences across the groups. Results of the post hoc with the Bonferroni correction showed that students who had completed the program showed the higher course score (M= 81.11 – 82.34, SD = 6.03 - 6.89) than the students who did not take the program (M = 76.78 – 77.65, SD = 9.93 – 10.31). The students who had not completed the program yet also showed the higher course score (M = 80.83 – 81.85, SD = 6.36 – 11.70) than the students who did not take the program.

10010		n to tri m at the	5 	•••				
Vaar	Duadiatona	Sum	Degree	Mean	F		c2	Post hoc with
Tear	Fredictors	of Squares	of freedom	Square	Г	p	ω	Bonferroni correction
2014	Error	4846	2	2423	31.1	<.001	0.01	CI-students > NTI-students,
	Interdisciplinary	324831	4164	78				NCI-students > NTI-students
	program							
2015	Error	5945	2	2973	31.6	<.001	0.01	CI-students > NTI-students,
	Interdisciplinary	393665	4189	94				NCI-students > NTI-students
	program							
2016	5 Error	4324	2	2162	21	<.001	0.01	CI-students > NTI-students,
	Interdisciplinary	440690	4286	103				NCI-students > NTI-students
	program							

Table 2. The results of ANOVA in	n average course scores
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Note. CI-students means the student who had completed the interdisciplinary program. NCI-students means the student who had not completed the interdisciplinary program yet. NTI-students means the student who did not take the interdisciplinary program.

In addition, for the students who take the program, their course scores of required subjects are collected both before and after they take the program. Results indicated that students get higher course scores after taking interdisciplinary studies (M = 81.87 - 83.42, SD = 7.81 - 8.21) than before the program (M = 79.36 - 80.12, SD = 5.32 - 6.00).

Table 3. The results of the repeated-measurement t-test in average course scores

Year	Average course score before taking the program	Average course score after taking the program	t Degree of freedom	р	Cohen's d
2014	80.12	81.87	-2.58 86	.012	0.28
2015	80.10	83.42	-4.47 88	<.001	0.47
2016	79.36	82.35	-2.66 33	.012	0.46

The course score is not the only criteria for the interdisciplinary program. In each school, there are many socalled "core competency" to be cultivated before they graduated from college. In this study, nine core competencies refer to Creativity, Critical Thinking, Social Responsibility, Expression and Communication, Lifelong Learning, Aesthetic, Global Vision, Cooperation and Leadership, and Environmental Literacy, are analyzed. Along with this line, the dimensions of psychological attributes and college experiences from Collegiate Outcomes of Learning Assessments (COLA) system were also integrated for investigation. The learning motivation including the self-efficacy, the task value, the intrinsic goal orientation, and the extrinsic goal orientation are investigated in this study. All variables are described in table 4. The analytics of ANOVA was conducted to examine students who had completed the program, the students who had not completed the program yet, and the students who did not take the program.



Dependent variables	Definition
Learning motivation	
Self-efficacy	An individual's belief in his or her capacity to achieve on specific performance attainments
Task value	An individual evaluates the applicability of the learning interest, applicability, and importance on the task.
Intrinsic goal orientation	The learning motivation that derives from an individual; primarily internal reasons
Extrinsic goal orientation	The learning motivation was caused by primarily external reasons
Nine core competencies	
Creativity	The use of imagination and knowledge to create something
Critical Thinking	The competency of making an evidence-based and reasoned judgment that are open-minded, logical, and well thought out.
Social Responsibility	The competency of engaging in activity that benefits the others, community, and society.
Expression and Communication	The competency of communicating by using both language and none language skill with others efficiently.
Life-long Learning	The competency of learning autonomously for increasing knowledge and wisdom.
Aesthetic	The competency of understanding the ideas or opinions about beauty and art.
Global Vision	The competency of connecting, understanding, and respecting different countries and cultures.
Cooperation and Leadership	The competency of leading a group of people and/or working together with others to accomplish something.
Environmental Literacy	The competency of understanding the relationship between human and nature, and using the resources from nature reasonably, which can balance the human life and the environment.

Table 4. The Definition of Learning Motivation and Nine Core Competencies

The results of learning motivation are shown in table 5. The main effect of the program is significant only on the students' extrinsic goal orientation ($F_{(2, 2804)} = 4.50, p = .011, \omega^2 = .002$) in 2014. The post hoc with Bonferroni correction indicated that the students who had not completed the program yet show higher extrinsic goal orientation (M = 3.08, SD = 0.53) than the students who did not take the program (M = 2.93, SD = 0.63). In 2015, main effects of the interdisciplinary program are significant in self-efficacy ($F_{(2, 2592)} = 5.21, p = .006, \omega^2 = .003$), task value ($F_{(2, 2587)} = 5.78, p = .003, \omega^2 = .004$), and intrinsic goal orientation (K = 3.14, SD = 0.56) than the students who bad not completed that the students who had completed the program showed higher self-efficacy (M = 3.13, SD = 0.54) and intrinsic goal orientation (M = 3.02, SD = 0.55). The students who had not completed the program yet showed the lowest task value (M = 2.81, SD = 0.56) than the students who had not completed the program yet showed the lowest task value (M = 2.81, SD = 0.56) than the students who had not completed the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 2.81, SD = 0.53) and the students who had completed the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 3.01, SD = 0.53) and the students who did not take the program (M = 2.91, SD = 0.55).

Table 5. The results of ANOVA in learning motivation

Year	Dependent variables	Predictors	Sum of Squares	Degree of freedom	Mean Square	F	р	ω^2	Post hoc with Bonferroni correction
2014	Self- efficacy	Interdisciplinary program	1.33	2	0.66	2.11	.120		
	erreacy.	Error	879.35	2804	0.31				
	Task value	Interdisciplinary	0.52	2	0.26	0.80	.451		
		Error	907.75	2804	0.32				



	Intrinsic goal	Interdisciplinary program	0.89	2	0.45 1.44 .237
	orientation	Error	868.79	2804	0.31
	Extrinsic goal	Interdisciplinary program	3.53	2	1.77 4.5 .011 <.01 NCI-students > NTI-students
	orientation	Error	1101.53	2804	0.39
2015	Self- efficacy	Interdisciplinary program	3.04	2	1.52 5.21 .006 <.01 CI-students > NTI-students
		Error	756.43	2592	0.29
	Task value	Interdisciplinary program	3.53	2	1.76 5.78 .003 <.01 CI-students > NCI-students, NTI-students > NCI-students
		Error	789.77	2587	0.31
	Intrinsic goal	Interdisciplinary program	2.43	2	1.22 4.08 .017 <.01 CI-students > NTI-students
	orientation	Error	769.11	2589	0.30
	Extrinsic goal	Interdisciplinary program	2.21	2	1.10 2.96 .052
	orientation	Error	962.65	2583	0.37
2016	Self- efficacy	Interdisciplinary program	0.79	2	0.39 1.32 .267
	·	Error	469.36	1577	0.30
	Task value	Interdisciplinary program	0.54	2	0.27 0.88 .413
		Error	479.61	1575	0.31
	Intrinsic goal	Interdisciplinary program	0.42	2	0.21 0.71 .494
	orientation	Error	473.90	1574	0.30
	Extrinsic goal	Interdisciplinary program	0.57	2	0.29 0.83 .436
	orientation	Error	538.76	1572	0.34

Note. CI-students means the student who had completed the interdisciplinary program. NCI-students means the student who had not completed the interdisciplinary program yet. NTI-students means the student who did not take the interdisciplinary program.

The results of nine abilities are showed in table 6 and indicated that only creativity ($F_{(2, 1304)} = 3.72$, p = .025, $\omega^2 = .004$), aesthetic ($F_{(2, 1304)} = 5.18$, p = .006, $\omega^2 = .006$), and environmental literacy ($F_{(2, 1304)} = 4.40$, p = .013, $\omega^2 = .005$) showed significant effect on main effect. The results of post hoc with Bonferroni correction indicated that the students who completed the interdisciplinary program showed higher aesthetic (M = 3.68, SD = 0.85) than the student who did not take the interdisciplinary program (M = 3.25, SD = 0.88). The students who had completed the interdisciplinary program yet (M = 3.39, SD = 0.78). The students who did not take the interdisciplinary program yet (M = 3.60, SD = 0.72) than the student who had completed the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. (M = 3.60, SD = 0.72) than the student who had completed the interdisciplinary program yet. The students who did not take the interdisciplinary program yet. (M = 3.51, SD = 0.72) than the student who had completed the interdisciplinary program yet. The students who did not take the interdisciplinary program yet (M = 3.28, SD = 0.72).

Dependent variables	Predictors	Sum of Squares	Degree of freedom	Mean Square	F	р	ω^2	Post hoc with Bonferroni correction
Creativity	Interdisciplinary program	3.93	2	1.97	3.72	.025	<0.01 N	VTI-students > NCI-students



	Error	689.18	1304	0.53		
Critical Thinking	Interdisciplinary program	1.39	2	0.69	1.75 .174	
Timiking	Error	516.45	1304	0.40		
Social Responsibility	Interdisciplinary program	3.02	2	1.51	2.82 .060	
1 5	Error	699.02	1304	0.54		
Expression and Communication	Interdisciplinary program	1.52	2	0.76	1.65 .192	
	Error	600.88	1304	0.45		
Life-long Learning	Interdisciplinary program	1.67	2	0.83	1.72 .180	
0	Error	634.13	1304	0.49		
Aesthetic	Interdisciplinary program	8.02	2	4.01	5.18 .006 0.01	CI-students > NTI-students
	Error	1010.06	1304	0.78		
Global Vision	Interdisciplinary program	0.29	2	0.15	0.20 .816	
	Error	938.248	1304	0.72		
Cooperation and Leadership	Interdisciplinary program	3.06	2	1.53	3.00 .050	
1	Error	665.28	1304	0.51		
Environmental Literacy	Interdisciplinary program	4.61	2	2.31	4.40 .013 0.01	CI-students > NCI-students, NTI-students > NCI-students
	Error	684.50	1304 📺	0.53		

Note. C-students means the student who had completed the interdisciplinary program. T-students means the student who had not completed the interdisciplinary program yet. R-students means the student who did not take the interdisciplinary program.

Conclusion and discussions

Given the importance of interdisciplinary program, it is critical that higher education researchers, leaders, and policy makers accurately identify and understand the relationships between institutional practices and educational outcomes. The present research found that students who have interdisciplinary courses outperformed compared to their counterparts. Furthermore, students who have interdisciplinary courses are associated with learning motivation and are more likely to have higher self-efficacy, task value, and intrinsic goal orientation. Particular attention was given to learning motivation which is the most vital for explaining the engagement behaviors of college students with interdisciplinary courses and how it relates to academic success. Simultaneously, institutions should provide an effective and supportive community for interdisciplinary learning and create a social environment to encourage students' participation in interdisciplinary courses. In addition to academic performance, we also found that the effects of interdisciplinary programs are significantly associated with aesthetic and environmental literacy competencies. However, students who had not completed the interdisciplinary programs are negatively related to creativity than other students did. Accordingly, there is a need to identify how those core competencies may be assessed on the course and program levels while implementing interdisciplinary programs. Future research is also needed to take different academic disciplines into account and how these competencies may be assessed on program levels.

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Implementation of Inclusive Education in the Division of Cavite: SPED and Receiving Teachers' Perceptions

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ABSTRACT

Implementation of inclusive education in the Philippines along with the mandate of the Constitution, Presidential Decree No. 603, and the Magna Carta for Persons with Disability, the State must uphold the right of all its citizens to quality education regardless of their circumstance. This study aimed to gather the SPED and receiving teachers' perceptions to the aforesaid program. This research utilized the quantitative method type of research. It involved a descriptive-correlational-quantitative research design. Out of 68 total populations of SPED teachers in the division of Cavite, 51 were identified as participants of the study through random sampling technique and a congruent number of the receiving teachers. Mean and Percentage score were used to measure the SPED and receiving teachers' perceptions on inclusive education while Chi-square and Tests Contingency Table was used in attaining the significant differences of the assessment when grouped according to dimensions. Based on the findings of the study, SPED teachers perceptions on inclusive education gained 43.76 mean score or 85.80% definitely agreed and 38.84 or 76.16% for the receiving teachers' perceptions which greatly implies that inclusive education implementation has a positive results to the SPED and receiving teachers though there are still in the level of need more information. In the dimension of producing inclusive policies and evolving inclusive practices the null hypotheses that there were no significant differences between the SPED and receiving teachers' perceptions were rejected. However, in dimension creating inclusive cultures, the null hypothesis was accepted. The results affirmed that there were significant differences gained in two dimensions wherein it implied that the SPED teachers' perceptions differ on the perceptions of the receiving teachers in relation to the implementation of inclusive education. The program must be continuously implemented to monitor the progress of the program by identifying its strength and weaknesses.

Keywords: Inclusive Education, Inclusive Cultures, Inclusive Practices, Inclusive Policies



Introduction

Inclusive education was officially adopted in 1997 in the Philippines by the Department of Education (DepEd) as an educational alternative wherein children with disabilities were included within regular schools. Thus, in line with the Department's thrust in providing quality education for all, the DepEd continues to provide the necessary educational interventions for learners with special needs.

The Division of Cavite adheres and strengthens the DepEd Order # 72, s. 2009 which is known as "Inclusive Education as Strategy for Increasing Participation Rate of Children". As it was being mandated, Special Education in the Philippines has only served 2% of the targeted 2.2 million children with disabilities in the country who live without access to a basic human right which is the right to education. Most of these children live in rural and far flung areas whose parents need to be aware of educational opportunities that these children could avail of (DepEd Order # 72, s. 2009).

In the same light, the Division of Cavite jump-starts the implementation of inclusive education in the whole division by conducting trainings and seminars to the Special Education (Sped) teachers, guidance counselors as well as the receiving teachers. Intensifying the outcomes of the inclusive education implementation made this research into realization.

There are several researches coined in the implementation of inclusive education, Dubey, Singh, & Prasad (2016). made an attempt to investigate the attitude of teachers and students towards special children or special educational needs children. Bhatnagar, N. and Das, A. (2014) in their study "Attitudes of Secondary School Teachers towards Inclusive Education in New Delhi, India" aimed to identify the attitudes of regular school teachers in Delhi, India, toward the inclusion of students with disabilities. It also explored their views regarding facilitators of inclusive education. The major finding of the study revealed that the teachers held positive attitudes toward the inclusion of students with disabilities. The teachers also suggested a number of facilitators of inclusion in their schools such as improved infrastructure, policy changes, and provisions for institutional resources.

As mentioned in the study of Priyadarshini and Thangarajathi (2017), Abate (2001), Avissar (2000), Smith and Smith (2000), and Stoler (1992) in their researches found that some correlation exists between teachers' attitudes and independent variables general education. They found that in-service training helped teachers to prepare for inclusion more than any other factor. Teachers with a higher level of education, with more years of teaching experience, and with more in-service courses had taken more positive views and noted more advantages to inclusion. Johnson (1996), O' Donnell (2009), and Hart (1998) in their researches found that teachers are basically enthusiastic about participating in inclusion that they were concerned about their level of training regarding modification and received effective teaching strategies for student with disabilities. N.V. Kuzmina, Ph.D. Rasskazov, 2015, one of his recommendations in his study is that knowledge of the curriculum structure of the academic and extracurricular activities in order to provide students with special educational needs additional reserve time for the effective implementation of educational tasks or public orders where appropriate.

However, the results of the study of Galeto and Bureros, 2017, reveals that inclusiveness for teacher education among State Universities and Colleges (SUCs) in the Philippines experienced insufficient coordination and collaboration within and between government ministries/departments as the top challenge. There was also insufficient coordination between different non-governmental and inter-governmental organizations, government departments, and teacher education institutions. A recent review of the status of the inclusive education system in Ghana (Ametepee & Anastasiou, 2015), however, found that ESP (2003–2015) targets have not been met, that only three percent of children with disabilities in Ghana receive any form of education, that the remainder fails to attend and that those who attend are without support. The establishment of an inclusive education system across Ghana has lagged because of barriers facing students with disabilities, such as schooling costs, lack of adequate transportation, unavailability of curriculum support and the absence of trained teachers (Singal et al., 2015).

According to United Nations Educational, Scientific and Cultural Organization, inclusive education is a process of addressing and responding to the diverse needs of all learners by increasing participation in learning and reducing exclusion within and from education.



In lieu of the above premise, it is significant to determine whether the inclination, awareness, and challenges of the Sped and the receiving teachers in the implementation of inclusive education in order to tailored a long term development educational plan for our learners with special needs.

Research Questions

This study aimed to determine the selected SPED and Receiving teachers' perceptions on the implementation of inclusive education in the division of Cavite.

Specifically, the study sought to answer the following questions:

- 1. What are the teachers' perceptions of the selected SPED teachers in the implementation of inclusive education in the Division of Cavite?
- 2. Based from the three dimensions identified in the implementation of inclusive education, what are the receiving teachers' perceptions?
- 3. Are there significant differences in the selected SPED and receiving teachers' perceptions on the implementation of inclusive education on the dimension of creating inclusive cultures?
- 4. Are there significant differences in the selected SPED and receiving teachers' perceptions on the implementation of inclusive education under the dimension of producing inclusive policies?
- 5. Are there significant differences in the selected SPED and receiving teachers' perceptions on the implementation of inclusive education on the dimension of evolving inclusive practices?
- 6. Based from the results, what is the future direction of the study?

Research Paradigm

The figure below demonstrates the conceptual research paradigm of the study.

Implementation of Inclusive Education in the Division of Cavite: SPED and Receiving Teachers' Perceptions



Figure 2. The research paradigm of the study showing the correlation of the selected SPED and Receiving teachers' perceptions on the following dimension in inclusive education such as: creating inclusive cultures, producing inclusive policies, and evolving inclusive education.



Methodology

This research utilized the quantitative method type of research. Specifically, it involved a descriptivecorrelational-quantitative research design. According to John Creswell (2008), Quantitative method of research is for testing objective theories by examining the relationship among variables. These variables can be measured on instruments so that numbered data can be analyzed using statistical procedures. This research design is appropriate for the current study due to the comprehensiveness of the approach which addresses the principal aim of the study. It involved a quantitative part which consists of the descriptive assessment of the study and the correlation of the variables. Complimentarily, there is also a qualitative part of the study. This consists of the unstructured interview results of the assessment of the stakeholders on the program and factors.

A. Sampling

In this study, the researchers made used of **random sampling technique** in selecting the participants of the study. The target participants were those SPED teachers and the receiving teachers of inclusive education in the division of Cavite. Out of 68 total population of the SPED teachers in the division, 51 were identified as participants of the study and a congruent number of receiving teachers acted as participants of the study.

B. Data Collection

The monitoring and assessment started in the first week of November 2018 ended in second week of January 2019 wherein the participants had enough time to adjust in the implementation of inclusive education.

The researchers, requested permission to the Division office, a formal communication to the district office together with the school administrators, the identified participants of the study from the SPED and receiving teachers in administering and implementing the study and to gather reliable data.

Data were gathered through the results of the standardized questionnaire of 2002 CSIE, Booth, T and Ainscow, M (2002) Index for Inclusion: developing learning and participation in schools and it was being modified by the researchers to fit the nature of the study in getting the perceptions of the participants towards inclusive education.

Results and Discussion

The findings of the study were systematically presented, analyzed and interpreted following the sequence of the research questions as enumerated previously.

Objective # 1. SPED teachers' perceptions in the implementation of inclusive education in the Division of Cavite.

The first table shows the result of the SPED teachers' perceptions in the implementation of inclusive education in the Division of Cavite.

Table 1

SPED teachers' perceptions in inclusive education.

		Indicators									
Dimension			need more								
	defiı	nitely agree		extent	d	lisagree	inf	ormation			
	Mean	Percentage	Mean	Percentage	Mean	Percentage	Mean	Percentage			



creating inclusive								
cultures	43.10	84.51%	7.40	14.51%	0.30	0.59%	0.20	0.39%
producing inclusive policies	47.79	93.71%	3.07	6.02%	0.15	0.29%	0.00	0.00%
evolving inclusive practices	40.40	79.22%	9.70	19.02%	0.60	1.18%	0.00	0.00%
Total	43.76	85.80%	6.72	13.18%	0.35	0.69%	0.07	0.14%

Based from the previous table, it showed that the SPED teachers' perceptions in the implementation of inclusive education got a general mean score of 43.76 and a percentage average of 85.80% among the three dimensions. However, there is still in the level of need more information with a mean score of 0.07 and a percentage average of 0.14%. These results implied that inclusive education implementation in the division of Cavite has a positive result to the SPED teachers in the division. In dimension 1, everyone is made to feel welcome and students are equally valued indicated 49 scores out of 51 SPED teachers' participants. While in dimension 2, bullying is minimized and special educational needs' policies are inclusion policies got the perfect scores according to the responses of the participants which greatly showed the acceptance of the SPED teachers in inclusive education. In evolving inclusive practices (dimension 3), homework contributes to the learning of all is on top though teaching assistants support the learning and participation of all students got 33 scores out of 51 participants.

Objective #2. Receiving teachers' perceptions in the implementation of inclusive education in the Division of Cavite among the three dimensions.

Table 2

Perceptions of the receiving teachers in inclusive education.

		110	// //					
Dimension	defir	nitely agree	agr	ee to some extent	5 18	isagree	need more information	
	Mean Percentage		Mean	Percentage	Mean Percentage		Mean	Percentage
creating inclusive								
cultures	38.70	75.88%	10.50	20.59%	1.60	3.14%	0.20	0.39%
producing inclusive policies	37.21	72.96%	11.50	22.55%	1.79	3.51%	0.50	0.98%
evolving inclusive practices	40.60	79.61%	8.70	17.06%	1.50	2.94%	0.20	0.39%
Total	38.84	76.16%	10.23	20.06%	3.89	7.63%	0.90	1.76%

Out of 51 receiving teachers' participants, an average mean score of 38.84 with a percentage average of 76.16% definitely agree as perceived by the receiving teachers in the implementation of inclusive education with a point difference of 4.92 from the responses of the SPED teachers. However, as definitely agree goes
down the need for more information goes up in relation to the responses of the SPED teachers in an average mean score of 0.90 and a percentage average of 1.76% with a point difference of 0.83.

Objective #3. The significant differences on the perceptions of the selected SPED and receiving teachers in the dimension of creating inclusive cultures in the implementation of inclusive education

Table 3

Significant differences on the perceptions of the SPED and receiving teachers in inclusive education in dimension 1 - creating inclusive cultures.

Dimension									
1 (creating									
inclusive			(Obs-		(Obs-				
cultures)	SPED	Receiving	Exp)	^2	Exp)	^2	^2/Obs	^2/Obs	Summation
A.1.1	49	43	8	64	2	4	1.306	0.093	1.399
A.1.2	35	39	-6	36	-2	4	1.029	0.103	1.131
A.1.3	45	40	4	16	-1	1	0.356	0.025	0.381
A.1.4	47	45	6	36	4	16	0.766	0.356	1.122
A.1.5	34	37	-7	49	-4	16	1.441	0.432	1.874
A.1.6	30	38	-11	121	-3	9	4.033	0.237	4.270
A.1.7	49	47	8	64	6	36	1.306	0.766	2.072
A.1.8	48	45	7	49	4	16	1.021	0.356	1.376
A.1.9	48	46	7	49	5	25	1.021	0.543	1.564
A.1.10	46	45	5	25	4	16	0.543	0.356	0.899
Total									16.088

Table 4

Interpretation on the perceptions of the SPED and receiving teachers in inclusive education.

Interpretation	
Chi-squared of Independence (Contingency Table)	16.088
Degree of Freedom Value	16.92
Decision	0.832 (Accepted)

The following tables reveal the significant difference of the responses of the SPED and receiving teachers in dimension 1 (creating inclusive cultures). Based on the result, 16.088 is less than the degree of freedom value with a point difference of 0.832, therefore the first null hypothesis shows that there is no significant difference in the selected SPED and receiving teachers' perceptions on the implementation of inclusive education on the dimension of creating inclusive cultures is accepted.

Objective #4. The significant differences on the perceptions of the selected SPED and receiving teachers in the dimension of producing inclusive policies in the implementation of inclusive education

Table 5

Significant differences on the perceptions of the SPED and receiving teachers in dimension 2 – producing inclusive policies.

Dimension 2 (producing SPED Receiving (Obs- Exp) (Obs- Exp) ^2 ^2/Obs ^2/Obs Summation 471 Isth annual conference september 25-27, 2019 Talwan	inclusive policie	.									
(producing SPED Receiving Exp) ^2 Exp) ^2 ^2/Obs ^2/Obs Summation	Dimension 2			(Obs-		(Obs-					
471 19th annual conference september 25-27, 2019 Taiwan	(producing	SPED	Receiving	Exp)	^2	Exp)	^2	^2/Obs	^2/Obs	Summation	
September 25-27, 2019 Taiwan						1			648740 • • • • • • • • • •		
					C C C C			septe	19(n ani mber 25-2	7, 2019 Talwar	

inclusive policies									
B.1.1	49	33	8	64	-8	64	1.306	1.939	3.246
B.1.2	48	37	7	49	-4	16	1.021	0.432	1.453
B.1.3	48	36	7	49	-5	25	1.021	0.694	1.715
B.1.4	46	40	5	25	-1	1	0.543	0.025	0.568
B.1.5	49	35	8	64	-6	36	1.306	1.029	2.335
B.1.6	47	28	6	36	-13	169	0.766	6.036	6.802
B.1.7	47	34	6	36	-7	49	0.766	1.441	2.207
B.1.8	51	45	10	100	4	16	1.961	0.356	2.316
B.1.9	49	43	8	64	2	4	1.306	0.093	1.399
B.1.10	45	36	4	16	-5	25	0.356	0.694	1.050
B.1.11	45	41	4	16	0	0	0.356	0.000	0.356
B.1.12	46	36	5	25	-5	25	0.543	0.694	1.238
B.1.13	48	38	7	49	-3	9	1.021	0.237	1.258
B.1.14	51	39	10	100	-2	4	1.961	0.103	2.063
Total		/				\cup		11	28.006

Table 6

Interpretation on the perceptions of the SPED and receiving teachers in dimension 2.

Interpret	tation
Chi-squared of Independence (Contingency Table)	28.006
Degree of Freedom Value	22.36
Decision	5.646 (Rejected)

Affirming the results of the previous table # 5 and 6, the result of the test of difference on the perceptions of the SPED and receiving teachers also validated that there is significant difference in the perceptions of the SPED and receiving teachers in the dimension of producing inclusive policies. The result of the chi-square of independence generated a p-value of 28.006 which renders it very significant. Hence, the second null hypothesis that there is no significant difference in the perceptions of the SPED and receiving teachers in the dimension of producing inclusive policies must be rejected. Werts and Brewer (2015) found that the aims of education policies are not usually in line with what teachers believe, as well as the motivations and capacities they have.

Objective #5. The significant differences on the perceptions of the selected SPED and receiving teachers in the dimension of evolving inclusive practices in the implementation of inclusive education

Table 7

Significant differences on the perceptions of the SPED and receiving teachers in dimension 3 – evolving inclusive practices

Dimension			(Obs-		(Obs-				
1	SPED	Receiving	Exp)	^2	Exp)	^2	^2/Obs	^2/Obs	Summation
C.1.1	46	41	5	25	0	0	0.543	0.000	0.543
C.1.2	41	44	0	0	3	9	0.000	0.205	0.205
C.1.3	46	38	5	25	-3	9	0.543	0.237	0.780



19th annual conference september 25-27, 2019 | talwan

C.1.4	33	34	-8	64	-7	49	1.939	1.441	3.381
C.1.5	45	45	4	16	4	16	0.356	0.356	0.711
C.1.6	43	46	2	4	5	25	0.093	0.543	0.637
C.1.7	33	36	-8	64	-5	25	1.939	0.694	2.634
C.1.8	31	39	-10	100	-2	4	3.226	0.103	3.328
C.1.9	47	46	б	36	5	25	0.766	0.543	1.309
C.1.10	39	37	-2	4	-4	16	0.103	0.432	0.535
Total									14.063

Table 8

Interpretation on the perceptions of the SPED and receiving teachers in dimension 3.

	Interpretation	
Chi-squared of Independence (Contingency	y Table)	14.063
Degree of Freedom Value		16.92
Decision		2.857 (Rejected)

The succeeding table provides the significant difference of the perceptions of the participants in the implementation of inclusive education in the dimension of evolving inclusive practices.

Based from the result of the Chi-squared of Independence, the table revealed that the chi-squared of independence or p-value was 14.063 and the degree of freedom was 16.92 with a point difference of 2.857. This means that there exists a significant difference among the perceptions of the participants when they assessed the implementation of inclusive education. Therefore, the null hypothesis stated previously that there is no significant difference in the assessment of the implementation of the inclusive education when grouped according to the dimension of evolving inclusive education should be rejected. In the study of Ametepee, L. K., & Anastasiou, D. (2015), less than 25% respondents know the inclusive classroom practices. Teachers said that their professional knowledge not adequate for the teaching of special children.

Objective #6. The future direction of the study.

Based on the findings of the study, it is evident and remarkable that almost 80 percent of the participants from SPED and receiving teachers definitely agreed that inclusive education contributes to the equality of the curriculum and treatment to the Learners with Special Educational Needs (LSEN). However, the SPED teachers' perceptions differ in the perceptions of the receiving teachers in relation to the implementation of inclusive education in the dimension of producing inclusive policies and evolving inclusive practices. Salient points of the study portray that the participants acknowledge the advantage and benefits gained in the implementation of the inclusive education. Ultimately the results of the test are sufficient evidence to confirm the effect and the succeeding impact of the implementation program on the awareness to the teachers, learners, and the community as well. Further studies may focus on the added factors that may serve as determinants of the success of the program.

The program must be continuously implemented to still monitor the progress of the program in identifying its strength and weaknesses. A long-term implementation plan may be put into place.



Conclusion and Recommendation

As presented on the results of the study on the Sped and receiving teachers' perceptions about inclusive education implementation in the Division of Cavite, a distinction of perceptions between the Sped and receiving teachers in the dimension of producing inclusive policies and evolving inclusive practices were shown. It is also concluded that the receiving teachers are willing to accept inclusion despite of their limited capacity to address special educational needs since they are not specialized unlike with the special education teachers. Hence, the Division of Cavite conducted trainings and seminars about inclusion as supported to the policies of inclusive education system, still there are challenges encountered by the Sped and receiving teachers in producing inclusive policies wherein the receiving teachers agree to some extent that all forms of support are coordinated and some of them still need more information regarding with this matter. It is same as with the staff development activities that help staff to respond to student diversity. In the same light, in the evolving inclusive practices dimension, receiving teachers perceived that six or 12% out of 51 receiving teacher participants disagree that through inclusion the students learn collaboratively and take part in activities outside the classroom. Therefore, it was being concluded that two out of three dimensions that there is no significant difference in the assessment of the implementation of the inclusive education when grouped according to the dimension of producing inclusive policies and evolving inclusive education as perceived by the Sped and the receiving teachers were rejected.

However, despite of the differences on the responses on how the Sped and the receiving teacher's perceived inclusive education, the overall results confirmed that they both agree that inclusion is a desirable activities and they believed that all learners regardless of their disabilities as long as they are not severe cases should learn in a regular classroom setting.

The findings of this study have several implications in the progression of inclusion and in the modification of teachers' preparedness and perceptions towards inclusion. Based on the results, the curriculum planners and implementers may tailored an action plan for the Professional Development Plan for an in-depth short courses for the receiving teachers for teachers that would develop a skills in handling special education and inclusion. An opportunity will be given to the teacher educators to have a wide range of experience with the learners with disabilities. Through this study, it will creates an awareness to the higher education that they will develop a curriculum that promote inclusive education by understanding the diversity of the learners and the appropriate pedagogical approaches to those education students as their pre-service training.

This research may be useful in other future studies and other educational institutions as references and may adopt or replicate the program. It also intend to influence the policy makers of the educational system to take into consideration the merits and attributions generated by the study.

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4_Paper34

An Exploratory Study on the Skills and Competencies Needed by HEI Teachers in the Fourth Industrial Revolution

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ABSTRACT

The Fourth Industrial Revolution (IR 4.0) is expected to affect not only business, governance and the people, but also education. Based on trends, it was predicted that IR 4.0 necessitates major changes in major aspects of education, particularly in content, delivery/pedagogy, and structure/management of education. It will also require changes in the role of teachers inside and outside the classrooms. Thus, teachers need to relearn and equip themselves with skills and competencies to meet the learning needs and preferences of Gen Z students. While there are a lot of articles written about the trends, student competencies, and technological innovations in IR 4.0, not many studies have been done about the teaching competencies expected among HEI teachers to thrive in the new era. This study aimed to identify these teaching skills and competencies. It also sought to determine the teaching practices that will define each competency. In the identification of these competencies, the following were conducted: (1) conceptualization of teaching competencies through literature review, (2) survey on faculty and students' perception, and (3) content and factor analyses. Results indicate that HEI teachers need to possess the following competencies: Mentoring and Subject Mastery Skills, Technological and Digital Skills, Skills in Different Teaching and Learning Approaches, Skills in Developing Expected Student Learning Outcomes, and Assessment Skills. Implications of the study and recommendations are discussed.

Keywords: Fourth Industrial Revolution, Teaching Competencies, Teachers 4.0, Education 4.0





Introduction

The Fourth Industrial Revolution (IR 4.0) is predicted to come in full force and in rapid pace that it will fundamentally alter the way people live, work, and relate to one another. We are currently witnessing the emergence of various technological innovations and advances, such as internet of things, artificial intelligence, robotics, 3D printing, among others, coming from the physical, digital and biological/science fields and affecting all the areas of economy and industry. While the First Industrial Revolution saw the use of water and steam power to mechanize production, the Second Revolution – of electric power to create mass production, and the Third – of electronics and information technology to automate production, the Fourth Industrial Revolution, which is building on the Third Revolution, jump started the digital revolution, characterized by a fusion of various technologies. What is distinct about the Fourth from the Third is its velocity, scope, and systems impact. This new era is evolving at an exponential rather than a linear pace, disrupting almost every industry in every country, and transforming the entire systems of production, management, and governance (Schwab, 2016).

IR 4.0 is expected to affect not only the business, governance, the people, but also education. Based on trends, it was predicted that IR 4.0 will necessitate major changes in major aspects of education, particularly in content, delivery/pedagogy, and structure/management of education (Haseeb, 2018). Fisk (2017) said that "whether it is classroom or workplace, online or offline, structured or unstructured, taught or learnt, standardized or not, certificated or not, then learning is likely to break free from our old mindsets in the coming years" (p.1). He identified nine (9) trends that will stand out in education in coming years, as follows:

- 1. *Diverse time and place*: Students will have more opportunities to learn at different times in different places through E-learning;
- 2. *Personalized learning*: Students will learn with study tools that adapt to their capabilities and where above average students shall be challenged with harder tasks and questions when a certain level is achieved while those experiencing difficulties will be given the opportunity to practice more until they reach the required level;
- 3. *Free choice*: Students will be able to modify their learning process with tools they feel are necessary for them and will learn with different devices, programs and techniques based on their own preference;
- 4. *Project based*: Students will adapt to project-based learning and working which will afford them to apply their skills in shorter terms to a variety of situations;
- 5. *Field experience*: Schools will provide more opportunities for students to obtain real-world skills in the field that are representative to their jobs through internships, mentoring, and collaboration projects;
- 6. *Data interpretation*: As computers will take care of every statistical analysis of data, human reasoning and theoretical knowledge to infer logic and trends will become a fundamental new aspect of the literacy;
- 7. *Exams will change completely*: Application of student knowledge will be best tested through projects in the field since exams may not validly measure what students are capable of;
- 8. Student ownership: Students will become more and more involved in forming their curricula;
- 9. *Mentoring will become more important*: Students will become more independent in their learning process in 20 years that mentoring will become fundamental to student success.

Purnomo (2017, as cited by Afrianto, 2018) identified several approaches that teachers should do in the era of digitalization during the IR 4.0 as follows: (1) Student-centered, (2) Contextual learning, (3) Community integrated learning, (4) Collaborative learning, and (5) Technology-based learning. Among the learning models that teachers can use in the context of implementing student-centered learning include inquiry learning, project-based learning, scientific approach, or problem-based learning. As for contextual learning, teachers may use problems-based learning approach to enable students to connect with the real world. For community integrated learning approach, teachers may require the students to be involved in their social environment. In the context of collaborative learning, teachers may apply the principles of cooperative learning. Lastly, for technology-based learning approach, teachers may integrate the latest information technology developments in their learning and teaching activities. For example, they may combine offline learning mode with online (blended learning/hybrid learning) and make use of several online learning applications and social media platforms to enhance students' learning.



The trends and changes in pedagogy will necessitate transformation in the role of the teachers inside and outside the classrooms. Teachers need to "make self-adaptation and changes to successfully utilize the potentials brought about by IR 4.0" by "shifting the mind about the role of the teacher and the learning process, conducting adaptation programs, such as adjusting curriculum content, and applying various current learning models suitable for millennial generation students." (Afrianto, 2018, p.13). They also need to relearn and equip themselves with the skills and competencies to meet the learning needs and preferences of the Gen Z students.

While many articles have been written about the trends, student competencies, and technological innovations needed in the IR 4.0, not much have been studied about the teaching skills and competencies expected among the HEI teachers to thrive in the new era. It is therefore crucial to explore the teaching skills and practices needed by the teachers to meet the needs and challenges in the IR 4.0.

Objectives of the Study

While there are a number of frameworks to map out the competencies and skills needed by the students to succeed in college and eventually in professional life in the 21st century, it is crucial that a framework on teacher' instructional skills should also be created. What should teachers possess and be able to do to help students become successful learners in the Fourth Industrial Revolution?

This study aimed to identify the teaching skills and competencies needed by the HEI teachers during the IR 4.0. It also sought to determine the teaching practices that will define each competency.

Method

This is a descriptive-exploratory study to determine the teaching competencies and practices needed by the HEI teachers in the IR 4.0. The study included 63 faculty members, 225 students, and 10 school administrators who took part in a survey. The first survey form was a checklist of various teaching practices wherein faculty and student respondents were asked to identify the skills and competencies that teachers would need to meet the learning needs and preferences of students during the IR 4.0 period. The second survey form was intended for administrator respondents who were asked to validate the applicability of these teaching behaviors to the proposed areas or dimensions. The survey forms were distributed to the faculty participants during a seminar-workshop on classroom assessment, to the students in their classroom, and to the administrators through google form. Data were analyzed quantitatively through means and standard deviation, and through exploratory factor analysis (EFA).

Results

Teaching Practices Expected in IR 4.0 and their Areas/Dimensions

In the identification of the needed teaching skills and competencies, the following were conducted: (1) conceptualization of what constitutes effective teaching practices in IR 4.0 through literature review, (2) survey on faculty and students' perception, and (3) content and construct analyses.

Various teaching skills, competencies, and practices expected in IR 4.0 were identified from literature. Clustering these instructional expectations revealed the following areas: (1) Digital Fluency, (2) Skills in Teaching and Learning Approaches, (3) Mentoring Skills, (4) Effectiveness in Assessment, (5) Subject Matter Mastery, and (6) Effectiveness in Developing the Desired Students' Competencies.

Since students are expected to be technology savvy in the new era, much more is expected from teachers since they will be at the forefront in developing these digital skills among the students. Teachers themselves should have digital skills. Teachers should also possess skills in different learning models. Some learning models



emerged in the literature which teachers can use as teaching approaches during the IR 4.0, such as collaborative learning, project-based learning, personalized learning, and technology-based learning. Mentoring skill is also important since according to Fisk (2017), future students will incorporate so much independence in to their learning process that mentoring will become fundamental to student success. Effectiveness in designing and implementing assessment tools is also desired since exams will change completely in the new era. According to Fisk, "as courseware platforms will assess students' capabilities at each step, measuring their competencies through Q&A might become irrelevant, or might not suffice" (p. 5). As such, teachers should have the skills in designing assessment tools that are relevant to the innovative and varied learning and teaching approaches in IR 4.0. Similarly, studies on teaching effectiveness have shown that competent teachers possess mastery of the subject matter. While teachers are seen as more of a facilitator during the new era, they are still expected to have a strong grasp of the subject matter so that there will be smooth flow of teaching and learning process in the class. Lastly, teachers should be effective in developing the desired students' skills and competencies. Research-based evidence on teaching effectiveness strongly suggests that it is a key determinant of student achievement. To be effective teachers in this new era, it is essential for the teachers to teach students not just the course contents but also the sets of skills (i.e., 4Cs) that are most in demand in the 21st century and beyond.

Based on the above six areas/dimensions identified in the literature, five behavioral indicators or teaching practices were then drafted for each of the areas/dimensions, for a total of 55 teaching practices. The faculty and student respondents were then asked to identify which of these teaching practices teachers may need to meet the learning needs and preferences of students during the IR 4.0 period. Out of the 55 teaching practices, faculty rated 50 items as "highly needed" and 5 as "moderately needed". On the other hand, students rated 34 items as "highly relevant" and 21 as "moderately relevant". [Table 1]

Area	Fa	culty	Students		
	Highly Relevant	Moderately Relevant	Highly Relevant	Moderately Relevant	
Digital Fluency	3	2	3	2	
Teaching Skills in:			N & /	//	
- Collaborative Learning	4	1	3	2	
- Project-Based Learning	5		3//	2	
- Personalized Learning	5		2	3	
Mentoring Skills	5 1 5 1		4	1	
Assessment Skills	4		4	1	
Subject Matter Mastery	4		4	1	
Effectiveness in Developing Students'					
- Critical Thinking Skills	5		1	4	
- Creativity and Innovative Skills	5		2	3	
- Collaborative Skills	5		4	1	
- Communication Skills	5		4	1	
TOTAL	50	5	34	21	

Table 1: No. of Teaching Practices Identified by Respondents as Relevant per Area

Factors/Dimensions of Teaching Effectiveness in IR 4.0

The 55 teaching practices were further subjected to validation by asking 10 school administrators to judge the applicability/relevance of these teaching behaviors to the identified areas. Acceptability indices for the indicators were based on the guideline proposed by Lynn (1986 as cited by Polit & Beck, 2006) where the content validity index of an item (I-CVI) should be no lower than 0.78. Results indicate that I-CVIs ranged from .90 to 1.00 indicating that all items or behavioral indicators were applicable and relevant to their corresponding area.



However, when Exploratory Factor Analysis was conducted to explore the factor structure of the construct, only five (5) factors were extracted. A factor loading of .35 was set, based on Table of Loadings for Practical Significance by Hair et al. (1998). Of the 55 indicators of teaching practices, only 45 indicators loaded in five factors, indicating five (5) dimensions of teaching competencies needed in IR 4.0.

Factor 1: Mentoring and Subject Mastery Skills

Factor 1 has eight (8) indicators that seem to describe mentoring and subject mastery skills. It includes teaching practices such as "clarifying or explaining topics thoroughly", "making meaningful and effective connections of lessons with other related topics in other disciplines", "guiding students in conducting research, "adapting teaching styles to students' learning styles", "helping students to identify their most effective way of learning and encouraging them to use the most appropriate methods", etc. This factor can be called *Mentoring and Subject Mastery Skills*.

Mentoring skill is an essential competency expected from the teachers. Since students are given much independence and choice in their learning process during the new era, mentoring by teachers becomes crucial in guiding the students towards positive learning outcomes. The future curricula are expected to create more room for students to fulfill internships, mentoring projects, and collaboration projects that would need support and guidance from teachers. As such, teachers should have the necessary skills and attributes needed in mentoring the students.

Furthermore, teachers cannot effectively mentor students if they do not have mastery of the subject being handled. The teacher should have the appropriate competency to choose the topics to be discussed, identify the effective teaching strategies and activities to implement, distinguish the appropriate projects, assignments, and requirements, use the valid assessment methods, and determine the reasonable expected student learning outcomes. In short, mastery of subject matter results to better teacher's subject content delivery and students' learning.

Factor 2: Technology or Digital Skills

Ten teaching practices loaded in Factor 2. Factor 2 describes skills in using technology and online tools in class. This factor can be named as *Technology or Digital Skills*. Teaching practices that loaded in this factor include "using and incorporating digital tools or platforms for online collaboration and discussions with and among students", "making use of online interaction via forums, blogs, email, voice boards, teleconferencing and videoconferencing to advise, give feedback, and mentor students", "identifying and solving technical problems when operating devices/technology", among others.

It is expected that IR 4.0 will bring about tremendous use of ICT in conducting lessons, thus teachers need to equip themselves with the digital skills and fluency to meet the learning needs of the students. For example, the new era will see more of the implementation of MOOCs (massive open online courses) wherein classes can be done off-campus and online (Xing & Marwala, 2017) and the use of learning analytics which can handle the measurement, collection, analysis and reporting of data about student progress and how the curriculum is delivered (Carruthers, 2018). The Educational Technology and Mobile Learning (2016) website suggested nine (9) fundamental digital skills that teachers to possess: (1) record and edit audio clips, (2) create annotated, interactive and engaging video content, (3) create visually engaging content, (4) use social networking websites to create PLNs, connect, discover new content, and grow professionally, (5) use blogs and wikis to create participatory spaces for students, (6) use social bookmarking websites curate and share resources with the class, (7) create engaging presentations, (8) create digital portfolios, and (9) create non-traditional quizzes.

Factor 3: Skills in Using of Varied and Appropriate Teaching Strategies

Ten teaching practices clustered in Factor 3. Factor 3 seems to describe teacher's effectiveness in implementing collaborative learning, project-based learning, and other teaching strategies and can be named as *Skills in Using*



of Varied and Appropriate Teaching Strategies. Examples of teaching practices that loaded in this factor include "providing the students many opportunities to work with a group of classmates and peers as learning partners through classroom discussions, projects, assignments", "requiring projects or outputs that utilize higher-order thinking skills", "ensuring that teaching is personalized to individual students wherein positive reinforcements are used to promote positive learning and boost students' confidence and where gaps in knowledge are identified and addressed immediately", and the like.

Literature cited different learning models that can guide teachers in their strategies and approaches during the IR 4.0. These include collaborative learning, project-based learning, and personalized learning, aside from technology-based learning.

Collaborative Learning: Collaboration is one of the most important skills that students should possess to thrive in the new era. As such, students must be taught and be given the opportunities to collaborate with peers, classmates and others. In this context, teachers must apply the principles of cooperative and collaborative learning more during the learning process. The teacher should be able to provide students more opportunities to collaborate with their peers and support one another in group learning activities and assignments.

Project-Based Learning: In Education 4.0, students are expected to be more involved in their own learning through planning, researching, creating, and evaluating projects they have produced individually or through collaboration, both inside and outside the classroom. Students will be required to come up with projects that have real-world applications. As such, teachers should be able to provide students with abundant learning opportunities to engage in variety of projects, conduct research, consult a wide variety of resources and experts, and explore the enormous information relevant to their topic, all of which will lead to deeper understanding and learning.

Personalized Learning: In this model, students will learn in ways that are highly tailored to their specific skills, needs, and interests since it recognizes that students can learn and engage in different ways and at different places. Personalized learning is becoming popular due to the increasing access to and incorporation of technology in subject areas. With technology, teachers can adapt and target the curriculum, lesson plans, instructional activities, and assessment to address the commonly accepted idea that students are unique, and each student learns best in his or her own way. Students, on the other hand, will be able to modify their learning process with tools and techniques based on their own needs and preferences. Personalized learning is also referred to as a student-centered learning approach.

Factor 4: Skills in Achieving the Desired Student Outcomes

Ten teaching practices loaded in Factor 4. Factor 4 deals with teacher's ability to bring about student achievement of the relevant skills such as critical thinking skills, creativity and innovation, communication skills, and collaborative skills. This factor can be named as *Skills in Achieving Desired Student Outcomes*. Examples of teaching strategies that will help in student development include "encouraging students to collaborate with and/or seek advice from other students, teachers, experts inside or outside the campus regarding their lessons, research, or projects", "providing various problem-solving activities to develop students' critical and analytical skills", "requiring students to submit outputs or requirements that involve thinking outside the box, elaborating and creating", "giving students opportunities to articulate their thoughts and ideas using oral, written and nonverbal communication skills", and the like.

This factor is fitting to be one of the teaching dimensions to include since learning outcomes are an essential part of any subject. They spell out what a learner is expected to be able to do, know about and/or value at the completion of a course, and how well they are expected to achieve those outcomes. Every teacher should have the skills and competencies to help students achieve these expectations. He or she is effective in bringing about student achievement of the skills needed to thrive in the new era, such as the 4Cs.



Factor 5: Assessment Skills

Seven teaching practices clustered in Factor 5. This factor describes teaching practices related to effectiveness in designing and implementing assessment tools that are authentic, performance-based, and relevant and can be named as *Assessment Skills*. Examples of the behavioral indicators include "making use of authentic and performance-based assessments, such as project or output and actual performances to assess students' learning of the subject matter", "continuously monitoring students' engagement and progress in course assignments and activities and giving feedback for improvement", "allowing students to assess the work or performance of their peers and group-mates during collaborative learning and discussion", "requiring students to come up with projects or performances as their final outputs or requirements for their class", among others.

As mentioned, IR 4.0 will alter the dynamics of teaching and learning, which then necessitates changes in how teachers should assess students' learning. According to Siarova, Sternadel and Mašidlauskaitė (2017), that there is no single method that would fully measure key competences nor serve as a best practice for student assessment. They said that "several methods and types of assessment need to be used to assess various skills comprehensively' and that "the effectiveness of a method depends on its purposes and design, as well as on schools' and teachers' capacity to use it" (p. 8). Thus, teachers should also be effective in designing and implementing assessment tools that are varied, relevant, authentic, and performance-based.

Table 2 presents the teaching practices that loaded in each factor and their factor loadings.

Table 2: Teaching Practices that Loaded in Each Factor

I.	Mentoring/Subject Mas	tery Skills	(N=8)

- clarifies or explains topics thoroughly and effectively for students' understanding of the lesson (.4043)
- makes meaningful and effective connections of lessons with other related topics in other disciplines (.4002)
- guides students in conducting their research, contacting experts, and creating final projects or outputs (.4416)
- adapts their teaching style to different modes of learning, capacities, and needs of students (.5848)
- imparts wisdom to and shares knowledge to students through modeling, coaching, scaffolding, and other strategies (.6183)
- helps students to identify their most effective way of learning and encourage them to use the most appropriate methods (.6449)
- provides students with counseling, friendship, encouragement, and advice regarding their academic performance and course requirements (.7161)
- shows mastery of the subject matter (.5229)

II. Technological/Digital Skills (N=10)

- uses and incorporates digital tools or platforms for online collaboration and discussions with and among students (.4178)
- makes use of online interaction via forums, blogs, email, voice boards, teleconferencing and videoconferencing to advise, give feedback, and mentor students (.5183)
- easily identifies and solves technical problems when operating devices/technology (.5329)
- organizes teaching resources and activities in one's website or through available digital tools for students to access and share (.6618)
- requires students to collaborate and learn from each other through online discussions or interactive e-learning community (.5203)
- exposes students to a wide range of media technologies and teaches them how to use them appropriately, ethically, and effectively (.4471)
- knows what type of information and communications technology (ICT) resources, techniques and processes are the best tools to use to effectively teach the students (.4878)
- makes use of computer-assisted technology in course assessment (.5834)



- continuously learns and introduces/applies new technologies in class (.3629)
- encourages students to produce digital contents such as blogs, infographics, books, how-to videos, and tutorial which they can feel proud of and share with others (.6126)
- III. Skills in Using Varied and Appropriate Teaching Strategies (N=10)
 - teaches students on how to work effectively and respectfully with diverse teams (.5027)
 - provides many opportunities for students to work with a groups of classmates and peers as learning partners through classroom discussions, projects, assignments (.4536)
 - exposes students to more hands-on learning through field work, internships, mentoring, and collaborative projects (.3794)
 - ensures that teaching is personalized to individual students wherein positive reinforcements are used to promote positive learning and boost students' confidence and where gaps in knowledge are identified and addressed immediately (.5238)
 - makes use of well-tested creative thinking strategies to encourage and challenge students to stretch their imagination to come up with new ideas (.4232)
 - allows students to choose how they want to learn and through what learning tools or techniques that they prefer (e.g., blended learning, flipped classroom, etc. (.6061)
 - encourages students to build networks and to share their own ideas and to seek feedback on their ideas in order to improve on them (.4842)
 - trains students in communicating in diverse environments and with various types of audience
 - requires projects or outputs that utilize higher-order thinking skills (.3895)
 - requires students to prepare and create visually exciting presentation media (.3715)

IV. Skills in Developing Desired Student Outcomes (N=10)

- encourages students to collaborate with and/or seek advice from other students, teachers, experts inside or outside the campus regarding their lessons, research, or projects (.5671)
- allows students to conduct research or to produce projects based on their skills, needs and interests (.5647)
- provides various problem-solving activities to develop students' critical and analytical skills (.5206)
- requires students to submit outputs or requirements that involve thinking outside the box, elaborating and creating (.3756)
- gives students opportunities to articulate their thoughts and ideas using oral, written and nonverbal communication skills (.5251)
- trains students to exercise flexibility and willingness in making necessary compromises to accomplish a common goal that benefits all involved in the group (.4461)
- teaches students on how to engage in active listening and how to interpret and understand the meaning within the communication (.3724)
- creates quality learning environments that give learners the opportunity to solve authentic, realworld problems and to be inquisitive with an open mind (.3543)
- requires students to come up with new and innovative ideas/projects when doing their course requirements (.3982)
- encourages students to take responsibility when doing collaborative work with others (.3697)

V. Assessment Skills (7)

- makes use of authentic and performance-based assessments, such as project or output and actual performances to assess students' learning of the subject matter (.3500)
- continuously monitors students' engagement and progress in course assignments and activities and gives feedback for improvement (.3982)
- provides exercises or practice sets to help students in actively monitoring their learning and their progress in achieving the set course outcomes (.6242)
- allows students to assess the work or performance of their peers and group-mates during collaborative learning and discussion (.5074)
- requires students to come up with projects or performances as their final outputs or requirements for their class (.5338)



- gives students tasks that require them to collect data, develop and test hypotheses, use inductive or deductive reasoning to analyze the data, and make conclusions (.5878)
- requires students to present and share their knowledge, ideas and projects through traditional and online platforms such as class presentations, social media, blogs, publication, etc. (.5464)

Conclusion and Recommendations

It cannot be denied that a substantial amount of research has been done about teaching effectiveness. However, there is a dearth of studies that identify the teaching competencies needed in the 4th Industrial Revolution and come up with one framework to describe what constitutes an effective teacher in this era. This is because teaching effectiveness is "a slippery concept to grasp" (Kivunja, 2014, p.37) and "varies from teacher to teacher, class to class and from one era to the next" (Marland, as cited by Kivunja, 2014).

The 4th Industrial Revolution will witness the emergence of new and innovative technologies such that universities and higher education have to be ready and capable to respond to the needs and demands of this period. They should be equipped with excellent structure and resources to be able to mold and train students to become highly-skilled and thus, successful in their professional and personal lives.

In the Philippines, major educational reforms were undertaken to meet the challenges in this changing time and the demands of the labor market. Among the major reforms include the Enhanced Basic Education Act (K-12 Law) and the Philippine Qualifications Framework. The K-12 Law introduced the Senior High School (SHS) level, which allows students to choose from four tracks, namely academic, technical, vocational and livelihood, sports, and arts and designs. The law is aimed at providing more time for students' concept mastery and skills development needed for employment and entrepreneurship. On the other hand, the Philippine Qualifications Framework establishes the national standards and levels of educational qualifications to assist and support academic and worker mobility and to address jobs skills mismatch (Technical Education and Skills Development Authority, 2016).

Teachers are but among these resources who should be given utmost importance and consideration as they are considered as the single greatest factor in student achievement. As such, it is important to identify the teaching competencies that they need to be able to provide the best education to their students.

Results of the study have shown that teachers in the higher education institutions should have the following teaching competencies to be able to thrive in the IR 4.0: (1) Mentoring and Subject Mastery Skills, (2) Technology or Digital Skills, (3) Skills in Using of Varied and Appropriate Teaching Strategies, (4) Skills in Achieving Desired Student Outcomes, and (5) Assessment Skills. For teachers to possess these competencies and assume new teaching roles, the Universities have to prepare and support the teachers. They have to "provide training and open the opportunities to get access to technology and learn how to use them in a technical way as well as to apply it properly in didactical concepts" (Abdelrazeq, et al., 2016). They also have to support teachers' instructional needs, research and development projects, innovation initiatives, international linkages and collaboration, and the like through resource allocation and funding, infrastructure, and supportive policies and regulations.

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4_Paper36

Developing a Model of Teaching English to College Students

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ABSTRACT

This research was carried out in two Higher Education Institutions in Cagayan de Oro City with the aim of developing a model of teaching English to College students. The model consisted of five areas: Opening, Content Focus, Language Focus, Communication Focus, and Closing; which were derived from the research conducted by Madya (2004). The model focusing on the dimensions of teaching; requires students to be actively involved in their learning tasks using suitable media. Classroom observation, focus group discussion and questionnaires served as research instruments. The results of the study showed that efforts were made to establish teacher-student rapport. Through this, success in classroom management was gradually reached. The model likewise led to increasing student talk in classroom English, the use of interesting media, and active participation in various classroom games. Hence, it is concluded that the involvement of students in communicative activities, games and cooperative tasks led to joyful and effective learning.

Keywords: Model, Teaching, English, College Students, Media





Rationale

English as a medium of instruction is introduced to Filipino students starting from preschool. The language policy in the Philippines recognizes English; which is an international language, to play a huge part in the academic curriculum. Hence, the academe is in constant quest for innovative approaches, methods, techniques, and materials which are appropriate for teaching English as a foreign language in Higher Education Institutions.

This study focused on this objective: what model of teaching and learning is appropriate for teaching English in higher education institutions? The query is worth investigating as classroom observation results showed that the teaching of English among college students are conducted unprofessionally. Consideration of the multiple intelligences and Blooms' taxonomy are non-existent. Grammar is taught too much instead of communication. Translations without any context are used and students are not involved in communicative activities. Consequently, this paper was conceived; developing a model of teaching English to college students.

Methodology

This research was conducted in Cagayan de Oro City with the 105 randomly selected Education students of Capitol University (CU) and Mindanao University of Science and Technology (MUST) during school year 2015. The respondents were enrolled under the Bachelor of Secondary Education programs of both Universities in the first semester of the said school year.

Designed after the Research and Development method of Brumfit (2004), the researchers applied an exploratory development style. To fully investigate the communicative problems among the respondents, the study aimed to develop a model which can be used by language teachers among their English classes. A needs analysis was done first to identify the needs of the college students and to discuss their views about communication skills and communicative competence. The development of the model followed after the analysis stage.

The 100 randomly selected respondents were gathered in groups to obtain data through a focus group discussion. They were likewise observed in their respective classes. Subsequently, a follow up questionnaire was answered by these respondents.

Needs assessment showed that the research respondents were exposed to communicative activities in the classroom. Eighty five belonged to the Novice level while fifteen was under the intermediate level. Only five fall under the superior level. The Dare To Talk model (DTT) was then designed after the needs analysis. This developed model consists of five parts: Opening, Content Focus, Language Focus, Communication Focus, and Closing. Formative assessment tools are found in the closing but the entire lesson parts contain "talking" as the in-thing focused. This is like a marathon of talking scheme (Nunan, 1992). The content presentation of this DTT model contain strategies that promote active learning. This includes: brainstorming, cooperative group work, simulation and mini-lectures.

After completing the follow up questionnaire based from Akmajian (2014) which was done right after the classroom observation, the respondents were involved in the teaching demonstration using the DTT Model. They showed their cooperation through their positive involvement in the teaching learning processes verbally, affectively, and physically. They did the tasks given by the instructor—singing, playing games, writing and repeating.

The teaching demonstration using the model made the respondents aware of the nature of English for college students. Brown (2009) believes that having a good *teaching* strategy is just a half of the whole process of learning. It is a learning process from the *teacher* to the students. The other half is the application of the learning of the student to their concrete experience in life. After the demonstration was done, the respondents were asked to complete the questionnaire modified from Candlin (2011).

Burns (2009) posits that the five components which should be included into a communication lesson plan should be inclusive of Opening, Content Focus, Language Focus, Communication Focus, and Closing. These are deemed enough checklists to arrive at goals and objectives aligned with language standards, instructional input,



and proficiency. Hence, these five components were utilized as basis for the development of the Dare to Talk Model which was generated by this research.

Findings and Conclusions

The following discusses the relevant findings and conclusions derived from the research.

The respondents found the activities in the Dare To Talk model a joyful learning experience. Others found it very satisfactory as all points being learned are related to one another and reinforce one another. Vocabulary, grammatical structures, pronunciation and communicative activities were all integrated in the same topical theme.

From the results of data analysis, it is concluded that the Dare to Talk Model can be applied in tertiary schools to make learning more interesting with appropriate media and strategy to cater to students' varied learning needs. Brown (2000) posits that the use of media among English helps create a normal atmosphere whereby fear of learning a new language is essentially wiped out.

The aforesaid findings have led to the following conclusions:

(1) The DTT Model has been found to be effective in ensuring students' learning through the integration of learning in the following three aspects: meanings (content), language elements, and practice of using English communicatively;

(2) The learning of English can be effective if games are integrated;

(3) Tertiary school students can be actively involved with a high degree of spontaneity if the activities fit their stage of development, involving physical and mental activities;

(4) The use of appropriate media can make learning English interesting to widen students' attention span;

(5) The use of classroom English and routines can help create an English atmosphere in the classroom and provide input for effective acquisition; and

(6) The quality of classroom management can be built by (a) applying justice and equal attention and tasks, and (b) arrangement of time and activities.



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4_Paper37

The Effectiveness of Reciprocal Teaching Method Embedding Critical Thinking Towards Senior High School Students

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ABSTRACT

This paper aimed to investigate the effectiveness of reciprocal teaching strategy embedding critical thinking for students' reading comprehension at the Senior High School level of San Isidro College. Quantitative and qualitative approaches were employed to investigate the effectiveness of the method; looking into the students' perception on the technique used. The study was guided by two research questions: (a) does reciprocal teaching method embedding critical thinking affect Senior High School students' reading comprehension; (b) how do students perceive reading comprehension? One hundred five purposively sampled students participated in the study. The instruments of the study were reading comprehension test and questionnaires. Reading comprehension test was administered on two different occasions; before and after treatment, whereas questionnaires were administered prior to the end of the study. Paired sample t-test was employed to examine possible differences in students' pre and post-test scores.

Keywords: Reciprocal Teaching Method, Critical Thinking, Reading Comprehension





Introduction

Reading comprehension is the ability to process text, understand its meaning, and to integrate with what the reader already knows (Krashen, 1985). The ability to comprehend text is influenced by reader's skills and their ability to process information. If word recognition is difficult, students use too much of their processing capacity to read individual words, which interferes with their ability to comprehend what is read. Through reading, not only can students get information, but they can also develop their critical thinking and cognitive skills which are indispensable to reading comprehension. Reading comprehension comprises different types of reading including literal reading, inferential reading, critical reading, and creative reading.

In comprehending a passage, students need to have vocabulary (Oczkus, 2010). The less mastery they have of the vocabulary, the more difficult they comprehend the passage. Teachers also need to provide examples and exercises that practice students' intellectual activity. Appropriate teaching method is needed to make learning activity more attractive.

Reciprocal Teaching method is an instructional procedure that enhances students' reading comprehension. Its procedure assigns students to increase their comprehension and vocabulary knowledge; to use their prior knowledge and share their ideas. Hewitt (2014) states that Reciprocal Teaching method covers the phase of predicting, clarifying, questioning and summarizing to improve students' reading comprehension of the text while involving them in a verbal exchange of ideas. Moreover, Guthrie and Wigfield (2000) affirms that learners' reading motivation is a vital element that fosters learner's vocabulary learning and helps them in reading comprehension. Besides, vocabulary learning is a main factor in the learners' emotions. Therefore, reciprocal teaching is an effective element to motivate students in their learning and reading texts as cited by Ahmadi (2012). Moreover, Doolittle et al. (2006) state that one of the solutions to solve the problems of poor comprehension that can be effectively employed in the classroom, is the Reciprocal Teaching method can increase students' participation and activate their roles in teaching learning process as cited by Omari and Weshah, (2010). Students have roles in the reciprocal teaching method. Some roles involve working in a group. The learner's role in reciprocal teaching method is to act as predictor, questionnaire, clarifier, and summarizer.

In order to achieve the purpose of this study the following research questions were proposed: 1.Does reciprocal teaching method embedding critical thinking affect senior high school students' reading comprehension? 2.What are the students' perception about reciprocal reading?

Methodology

This study was conducted among 105 Senior High School students of San Isidro College, a private sectarian school in Mindanao, Philippines. The participants were eleventh graders which were taken from purposive sampling among 207students in the same level and homogenized through pre-classroom observation and interview with the teachers. Class atmosphere and the students' attitude became judgment in taking the samples. Pretest and posttest were given to the sample group. The sample group received treatment before the posttest. At the end of the treatment, a questionnaire was given to measure students' perception about the treatment. Quantitative data were gathered from students reading achievement and taken after giving reading test. The qualitative data came from the questionnaire and description process during the treatment which is supported by interview.

Results and Data Analysis

Shown in a tabular presentation that follows is the Pretest, Posttest and Gain score of students in their reading comprehension.



Number	Respondents		Score	
		Pretest	Posttest	Gain
1	Male	30	30	0
2	Female	43	66	23
3	Female	50	66	16
4	Female	46	58	12
5	Female	50	60	10
6	Female	46	56	10
7	Female	43	59	16
8	Male	43	55	12
9	Male	50	67	17
10	Female	46	56	10
11	Female	50	67	17
12	Female	43	50	7
l	Mean	45	57.5	12.5

The tabular data shows that the gain score of the respondents generally show an improvement with reference to their reading comprehension ability, after they were exposed to the reciprocal reading strategy which embedded critical thinking. Moreover, the respondents' critical thinking skills show a positive influence toward their reading comprehension through the reciprocal teaching method. The influence happens because there are some factors that influence students' critical thinking.

In the interview that was conducted by the researchers, after these respondents got the treatment; it was concluded that there are five aspects that affect students' critical thinking toward their reading comprehension. These are physical condition, motivation, intellectual development, teacher and students' interaction and experience.

Physical condition influences students' critical thinking. When the condition requires students to think critically and they are sick, it can disturb their concentration to think fast.

Motivation can also influence students' critical thinking toward their reading comprehension. Motivation is an effort or "a fire" that lights up, stimulate and push the energy for students to do and think something to achieve their goals. High motivation can be seen from the ability, capacity and absorption in learning, answering the question, showing desire and curiosity, and the need to agree or disagree about something.

Intellectual development can likewise influence students' critical thinking toward their reading comprehension. Intelligence is a mental ability to response or solve a problem or case, make a connection from one thing to another. The intellectual development of every person is different according to age and level of development. Related with this factor, the researchers gave a question about the impact of using plastic bags and the respondents' judgment.

Interaction between teacher and students occurred upon taking on the role of question and answer. Students need this academic atmosphere showing them freedom and sense of security to express their opinion in learning.

Another factor that influence of students' critical thinking through Reciprocal teaching method toward their' reading comprehension is experience. Experience is a principle that creeps up from the beginning as a novice learner.

All of these were embedded in the interview questionnaire utilized by the researchers.

Findings and Conclusions

Based on findings, data analysis and discussion, it can be concluded that:



1. Reciprocal Teaching that embedded critical thinking as a strategy heralds effective in helping students improve their reading ability in the pre and post tests. It helps novice readers learn and internalize the strategies excellent readers employ.

2. The use of reciprocal reading affected the students' reading comprehension because of the five factors which are physical condition, motivation, intellectual development teacher and students' interaction and experience.

3. Students have positive perception towards the use of the reciprocal technique in terms of the use of group discussion, which was found enjoyable; understanding, predicting, generating question, clarifying, and summarizing.

4. Reciprocal teaching encouraged students to think about their own thought process during reading. It helped the respondents learn to be actively involved and monitor their comprehension as they read. It taught them to ask questions during reading and helped them make the text more comprehensible.

In its entirety, reciprocal teaching was a contemporary application used by the English teachers among the respondents. It improved students' ability to learn from the text. With this method, teacher and students collaborated in learning and practicing four key skills of summarizing, questioning, clarifying, and predicting. Hence, a successful classroom was achieved. The effectiveness of the reciprocal teaching method was proven to suit the needs of the respondents.

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4_Paper44

The Investigation of the Influence of Self-Management and Career Planning for First-year Graduate Students on Practicability

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ABSTRACT

Should I full-time job first after graduation, or go to graduate school? This study aims to explore the influence of self-management (measured by self-awareness, emotion management, and time management) and career planning (measured by exploration, planning, development, barrier of career, social expectation, and employability) for graduate school freshmen on their practicability. The study employed quantitative research to analyze survey questionnaires between 2016 and 2018 from a private postsecondary institution. A total of 387 effective samples were analyzed. Analytical techniques were employed including descriptive statistics, t-test, and Pearson's correlation analyses. Findings suggest that the effects of students' self- management and career planning were significantly associated with their practicability. In addition, students with full-time job were found to be significant than those full-time student populations. Based on the results, implications are drawn from theory, policy and research.

Keywords: Graduate Education, InstitutionalResearch, Self-Management, Career Planning







Introduction

Self-management and career planning plays an important role in one's learning motivation and career development. In Taiwan, many college graduates have a difficult time to decide between entering job market and continuing on to graduate school after graduation. For those who choose to enroll in graduate schools, many of them do not know exactly what the purpose of pursuing in graduate education. Liu (2009) pointed out that graduate students, especially those who enrolled graduate schools right after graduated from colleges, are often struggling with the feeling of frustration and uncertainty, and this can due to the uncertainty of future and lack of career exploration and work experience. In addition, graduate students are subject to different economic, social, family and school responsibilities, and graduate students tend to experience more emotional problems, stress and different relationships with professors (Hodgson & Simoni, 1995). Further, the ability of selfmanagement and career planning continuously influence one's future development beyond graduate school. As argued by Abele and Wiese (2008), individual career success required self-management, such as self-set career goals and goal-pursuing behavior. Orpen (1994) in his study found that career self-management was positively associated with career effectiveness. Career planning carefully prepares an individual to cope with changes both in his/her work and in him/herself. Therefore, the purpose of this study was to explore graduate students' perception of self-management and career planning and further to examine whether their perception different with working experience.

1. Self-management

Self-management refers to the self-awareness process carried out by graduate students in order to achieve the goal of higher education and to meet the requirements of the society for their personal development, fully mobilize their own initiative and use and integrate their own resources. Self-management is like an ongoing inner dialogue. It is a part of emotion and intelligence that releases us from feelings prison (Sajjadinezhad & Youzbashi, 2004). According to Dembo and Seli (2008), three dimensions are integrated to constitute selfmanagement, and they are managing the mind, managing the emotion, managing the time. (1) Self-awareness is the ability to accurately perceive your own emotions as they happen, to be able to give a realistic assessment of your own abilities and to maintain a well-grounded sense of self-confidence. It includes competences such as emotional self-awareness, accurate self-assessment and self-confidence (Goleman, Boyatzis, R., & McKee, 2002). (2) Billie and Irit (2003) considers time management defined as a process of supervision and controlling self-activity, so it's referred to self-regulated and planning. Time management means those behaviors "that aim at achieving an effective use of time while performing certain goal-directed activities" (Claessens, Eerde, van, Rutte, & Roe, 2007, 262). Despite these changing patterns of enrolment, most basic research still focuses on full-time students, and very few studies address whether the predictors of achievement may be different for parttime students (Williams & Kane, 2010). (3) Emotional management is the ability to maintain control when situation, people and events make excessive demands (Abdullah, Hamed, Kechil, & Hamid, 2013). Emotion management is closely related to social bonds between persons theoretically (Scheff, 1997).

2. Career planning

Career planning refers to the process of identifying what one wants from his or her major, assessing his or her strengths and weaknesses in relation to one's goals, and deciding what steps need to be taken to realize the career dream. Career planning is a dynamic process, adaptable to changes in the students' experience as they build their professional knowledge, experience, and identity (Waddel & Maggie, 2005). Fundamental element in career planning is self-discovery, where the individual went through self-evaluation, a process where he/she check their own personal values, in context with his/her learned expertise and with the professional environment around them (Waddel & Maggie, 2005). Jaffe and Scott (1991) stated five stages in career planning; (1) self-assessment, in this stage the individual will explore his/her dreams, objectives, interests, capabilities, values, and weaknesses; (2) explore possibilities, after seeing inside the self and explore what are his/her interests and objectives, the individual then needs to see the outside world and explore opportunities; (3) create a plan, in this stage the individual state have been learned about him/herself and career opportunities, then arranging the career plan; (4) take action, the plan that had been made have to be put into action. The key is to



find daily activities that support the objectives, to divide plans into weekly activities and to keep looking for new chances; and (5) evaluate the outcome, after implementing the above stages, the next step is to ask one's self on how one's feels, seeing the options, and the things that had been done.

Career planning focuses on exploration, planning, development, barrier of career, social expectation, employability, and setting appropriate goals and implementation through the influence of school education and social environment. This study defines career planning as: Individuals face their own career choices, through individual social experience, educational background and social expectations, can make appropriate exploration, planning, development and barriers, while social expectations, future employment planning, will affect the individual's choice of their career.

A number of scholars have been studying graduate students' perceptions of self-management and career planning through case studies. Liao (2002) studied the case of graduate students from a public university in Taiwan and found that the majority of the studied graduate students concerned about their self-management skills. Among those studied self-management skills, Liao found that time management is the one mostly concerned. In terms of career planning, the studied graduate students were mostly worried about future job opportunity and the significance of their graduate theses. Other scholars have been studying the difference of student's perception of career planning among students' background characteristics, including sex, age, field of study, year of study, and working status (e.g., Dong, 2018). In Dong's study, her finding suggested that graduate students with job score higher in self-awareness and career planning, and this can be because they learned their strength and weakness through their working experiences. In this study, the same result is expected.

Given that this study specifically interested in exploring how working experience relate to graduate students' perception of self-management and career planning, employment status was asked in the questionnaire in order to be included in analysis. Following Dong's (2018) study, this study further divided graduate student's working experience to full-time and part-time in order to examine whether graduate students with different working experience perceive self-management and career planning differently. The hypotheses of this study are as below:

Hypothesis 1: The perceived self-management will be positively related to career planning.

Hypothesis 2: The perceived self-management and career planning can be different between full-time job and part-time job students.

Methodology

The study was conducted in quantitative method, including correlation coefficient and t-test analysis to investigate the effects of psychological characteristics (self-management and career planning) on graduate students' practicability. We developed a survey instrument to collect data, including a wide array of questions on students' participation in various activities at a private university in the northern Taiwan. The questions were designed to represent the ability of self-management and career planning. In particular, there were three subsets of self-management related questions, including self-awareness, emotion management, and time management, and there are six sub-sets of career planning related questions, including career exploration, career planning, career development, career barrier, social expectation, and employability.

The instruments were reviewed by institutional practitioners and experts specialized in the field of research method and college student experience to ensure reliability and validity of the survey. Accordingly, Cronbach's alpha was employed to assess the reliability of survey questionnaires. Overall, alpha values for the scales used in this study are on average above 0.60, revealing that each instrument of survey questionnaires are reasonably reliable. The survey was administered in 2016 to 2018 after graduating from high schools.

1. Participants

A total of 387 first-year graduate students from a private university in the northern Taiwan participated in this study. Among them, there were 151 male and 180 female students (41 sample with missing value of sex). There are 197 students (57%) from College of Social Sciences, 95 students (27%) from College of Management, 33



students (10%) from College of Communication, and 24 students (6%) from College of Design.

2. Measures

2.1 Self-management

Three observed variables were used to measure self-management, including self-awareness, time management, and emotion management. Every observed variable used a subscale with two to three items each (Table 1), and all subscales are 5-point Likert scales ranging from 1 to 5 with 1 being strongly disagree and 5 being strongly agree. Five-point Likert scales are reliable and valid, the coefficient alpha ranged from .58~.81. The standardized root mean square residual (SRMR), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI) were .044, .08, and .97, respectively.

Variables							
Subscales	Items						
	Self-management						
Self-awareness	tend to have narrow point of view/ not being open-mined in discussion; compare to others; avoid the fact of being lack of research ability.						
Emotion Management	cannot control/adjust emotion; emotion issue seriously influences my life, work, and relationship with others; emotion can be easily affected by my academic performance.						
Time Management	cannot well manage my schedule for course preparation; canot make balance between personal life and academic research.						
	Career Planning						
Exploration	know the value and need of life; know the type of jobs I like; know the required abilities for the job I like.						
Planning	have specific goal for my career; seriously implement my career plan; review my career goal regulary						
Development	know my current focus; know my current learning goal; my current learning is strongly related to my career goal						
Barrier	have weak will; my career goal is not supported; lack of confident based on my working experience.						
Social Expectation	lack of support on my career plan from my partner; lack of support on my academic performance from my partner; feel stress because of multiple roles.						
Employability	worried about the uncertainty of future job; do not know how to make a good resume; lack of interview skill.						

Table 1 Observed variables and items

2.2 Career planning

The career planning questionnaire includes six subscales, which are career exploration, career planning, career development, career barrier, social expectation, and employability. Every observed variable uses a subscale with three items each (Table 1); all subscales are 5-point Likert scales ranging from 1 to 5 with 1 being strongly disagree and 5 being strongly agree. Five-point Likert scales are reliable and valid, the coefficient alpha ranging .52~.90. The standardized root mean square residual (SRMR), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI) were .05, .07, and .97, respectively.

2.3 Working experience



Working experience was measured via one multiple-choice question in the questionnaire asking the frequency of job. The two alternative answers and their corresponding coding numbers are as follows: $\lceil 1 \rfloor$ is full-time job first after graduation; $\lceil 2 \rfloor$ is a go to graduate school.

3. Data analysis

Descriptive statistics, correlations, and t-test were estimated using the IBM SPSS 21 program.

4. Limitations

The study had some limitations. First, the data were restricted by the availability of variables identified in the research. Had different variables been used, the results might have been different. Also, the study was limited by the setting of a single private institution; thus care should be taken not to overgeneralize the results of the present study or at least to restrict generalization to similar institutional contexts.



Figure 1 Average score of self-management and career planning subscales

In general, the participated graduate students had positive perception of self-management and career planning, as shown in Figure 1. For self-management, the average scores of graduate students' perceptions of the three subscales were low but close to the medium score (3.0), indicating that the participated students felt positive but not with strong confident in self-awareness, emotion management, and time management. Similar results can be found for students' perception of career planning. The participated students tended to agree on having ability of exploration, planning, and development, while tended to disagree on suffering from barrier, social expectation, and employability.

Job was significantly correlated with self- management and career planning and some of its components. Job had significant positive relationship with time management, exploration, planning, and development, barrier of career, social expectation, and employability. Some dimensions had a significant positive or negative relationship with each other and the self-control and career planning (Table 2).



	1	2	3	4	5	6	7	8	9	10
1 Working Experience	1									
Self-management										
2 Self-awareness	04	1								
3 Emotion Management	10	.63**	1							
4 Time Management	.25**	.35**	.47**	1						
Career Planning										
5 Exploration	.22**	35**	19**	06	1					
6 Planning	.22**	29**	19**	10	.68**	1				
7 Development	.12*	27**	17**	11*	.51**	.55**	1			
8 Barrier	09	.44**	.49**	.38**	40**	30**	26**	1		
9 Social Expectation	.29**	.30**	.44**	.62**	11	08	11*	.40**	1	
10 Employability	13*	.27**	.28**	.21**	35**	33**	25*	.32**	.14*	1
M		2.42	2.34	2.64	3.80	3.57	3.86	2.49	2.39	2.76
SD		.65	.71	.83	.67	.73	.67	.78	.85	1.22

Table 2 Correlation coefficient results among working experience, self-management and career planning

Using the assumption of equal variance, the t-test revealed that there was a significant mean difference in the self-management and career planning of part-time and full-time job graduate students. Part-time job (M = 2.93, SD = .97) for the "employability" had higher mean than full-time job graduate students (M = 2.61, SD = 1.38). Another, full-time job for the "time management, exploration, planning, and development, barrier of career, social expectation" had higher mean than part-time job graduate students, the difference in the arithmetic means of the groups was statistically significant (t = -5.09, p< .001, t = -4.05, p < .001, t = -4.22, p < .001, t = -2.07, p < .05, t = -5.79, p < .001, t = 2.48, p < .001) (Table 3).

Variables	1-managemen	it and care		<u>c</u> D		050/ CI	
variables	type	(n)	M	SD		95% CI	
		°E à	AID	ant -		LL	UL
Self-management							
Self-awareness	part-time	160	2.43	.66	.24	12	.16
	full-time	187	2.41	.66			
Emotion	part-time	160	2.40	.74	1.63	03	.28
Management	full-time	187	2.28	.70			
Time	part-time	160	2.40	.78	-5.09***	61	27
Management	full-time	187	2.84	.84			
-							
Career Planning							
Exploration	part-time	159	3.64	.71	-4.05***	43	15
	full-time	185	3.93	.59			
Planning	part-time	159	3.39	.73	-4.22***	48	17
	full-time	185	3.72	.69			
Development	part-time	159	3.78	.72	-2.07*	29	01

Table 3 Results of the independent samples t-test applied to part-time and full-	time job on
the self-management and career planning variables	



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	full-time	185	3.93	.61				
Barrier	part-time	159	2.56	.82	1.62	03	.30	
	full-time	185	2.42	.74				
Social	part-time	159	2.10	.86	-5.79***	69	34	
Expectation	full-time	185	2.61	.77				
Employability	part-time	157	2.93	.97	2.48*	.06	.57	
1 5 5	full-time	185	2.61	1.38				

Note: ***p < .001; *p < .05

Discussion and Implications

This research found part-time job for the "employability" had higher mean than full-time job graduate students. Because the employability is to ask about the uncertainty of future work, do not know how to do a resume, lack of interview skills. Therefore, part-time job graduate students' plans for employability are stronger than those of dedicated workers. Part time students are more likely than full-time students to have competing demands from work and children that may displace study time. Moreover, part-time students who attrite frequently cite lack of time as their primary barrier to success (Kember, 1999). Given the greater time demands on part-time students, it is feasible that time management may be particularly important for this identifiable sub-group, both as a predictor of achievement and as a mediator of the conscientiousness-achievement relationship (MacCann, Fogarty, & Roberts, 2012).

With the complex and rapidly changing work environment, graduate students' career performance needs exploration, planning, development, barrier, and social expectation. The findings support the research hypotheses that the perceived self-management will be positively related to career planning.

The current study has shown that overall positive self-management and career planning are possessed, but not with strong confident, by graduate students, and that they cope effectively with their environment. More research is needed, but the current findings have identified strengths that can be built upon, and could also be a focus in training and professional development programs in the institutional research field.

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The Relationship between Student Semester Grade and Student Background- A Case Study of University of Taipei

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ABSTRACT

The purpose of this study is to understand the relationship between student semester grade and student background. Those students study at the University of Taipei from 2012 to 2016. We define the distribution of the semester grades of students from freshman to senior, such as good, regressive, progressive and backward. Analyze the relationship between the semester achievement trend and student background by Chi-Square Test. The results of the study show that (1) The semester achievement trend most proportion of good and backward; (2) There is a significant correlation between gender and the semester achievement trend; (3) In the College of Humanities and Arts, there is a significant correlation between the scores of university entrance exam and the semester achievement trend; (4) In the College of Kinesiology and the College of Education, there is a significant correlation between the admissions pipeline and the semester achievement trend; (5) There is no significant correlation between the household registration area and the semester achievement trend; (6) There is no significant correlation between the graduation high school category and the semester achievement trend.

Keywords: Institutional Research, Student Semester Grade, Student Background, the Semester Achievement Trend







Introduction

Student learning outcomes are an important topic of institutional research. The purpose of this study is to understand the relationship between student semester grade and student background. Those students study at the University of Taipei from 2012 to 2016. We define the distribution of the semester grades of students from freshman to senior, such as good, regressive, progressive and backward. Analyze the relationship between the semester achievement trend and student background. We discuss the following issues to understand the learning outcomes of students.

- (1) What is the distribution of semester achievement at the University of Taipei?
- (2) Does gender have an impact on the semester achievement trend?
- (3) Do the scores of the university entrance exam have an impact on the semester achievement trend?
- (4) Do the admissions pipeline have an impact on the semester achievement trend?
- (5) Does the household registration area have an impact on the semester achievement trend?
- (6) Does the graduation high school category have an impact on the semester achievement trend?

Definition of the semester achievement trend

We assume that the freshman and second grades are the first stage, and the third and fourth grades are the second stage. Calculate the average scores of compulsory subjects in the first and second stages of all students in the college. If the student's grade is greater than or equal to the average score of the compulsory subject of the student's college, the student is classified as a normal group (N). If the student's grade is lower than the average score of the compulsory subject of the student's college, the student is classified as a normal group (N). If the student's grade is lower than the average score of the compulsory subject of the student's college, the student is classified as a backward group (B). In this way, we define the distribution of the semester grades of students are "good", "regressive", "progressive" and "backward", such as figure 1.



Figure 1 : The distribution of the semester grades of students from freshman to senior

Data framework

The data is from 2012 in school system that includes the student's grade, gender, the scores of the university entrance exam, the admissions pipeline, the household registration area, the graduation high school category.



Variables	Code
Gender	1=male, 2=female
scores of the university entrance exam	1 = under 57, $2 =$ otherwise
admissions pipeline	1 = Tpye A, $2 =$ Type B, $3 =$ Type C, $4 =$
household registration area	Type D
graduation high school category	1 = N, 2 = C, 3 = S, 4 = E
semester achievement trend	1=public, 2=private
	1=good, 2= regressive, 3=progressive,
	4=backward

Table 1 Code of Variables

Data Analysis

A. Distribution of the semester achievement trend

Table 2: 7	The seme	ster ach	ieveme	nt trend	l freque	ncy tab	le				
	-	the semester achievement trend									
	go	od	regressive		progressive		backward				
	Freq.	%	Freq.	%	Freq.	%	Freq.	%			
College of Science	59	43.1	11	8.00	21	15.3	46	33.6	137		
College of Humanities and Arts	133	49.6	34	12.7	27	10.1	74	27.6	268		
College of Kinesiology	146	49.5	30	10.2	38	12.9	81	27.5	295		
College of Education	108	51.1	14	6.2	29	12.8	76	33.5	227		
Total	446	48.1	89	9.6	115	12.4	277	29.9	927		

The semester achievement trend is "good" nearly 50%. Overall, the College of Science is performing poorly.



Figure 2 : The distribution of the semester achievement trend

B. Gender

By χ^2 test, there is a significant correlation between gender and the semester achievement trend. (p-value<0.05). In College of Science, the male has the highest percentage of "backward", about 46%. And the female has the highest percentage of "good", about 66%. In other colleges, the difference between gender and the semester achievement trend is also evident in Table 3. Most males have a high percentage of "backward" and are much higher than females. We think that the worst situation is "regressive". Among all colleges, the College of Humanities and Arts has a higher rate of "regressive", which requires more attention.



C. The scores of the university entrance exam

Since most of the students of the College of Kinesiology are admitted through independent enrollment and there were not scores of the university entrance exam, we will ignore this analysis in the College of Kinesiology. By χ^2 test, in the College of Humanities and Arts, there is a significant correlation between the scores of university entrance exam and the semester achievement trend. The relationship is not significant in other colleges. In the College of Humanities and Arts, the students with $\lceil \geq 58 \rfloor$ of the scores of the university entrance exam have the highest percentage of "good", about 68.9%. The result of data analysis is in Table 4.

College of		good		regres	sive	progre	essive	backv	vard	χ^2
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	_
Science	≥ 58	21	32.8	6	9.4	14	21.9	23	35.9	6.966
	< 58	63	54.0	5	7.9	6	9.5	18	28.6	
Humanities	≥ 58	51	68.9	8	10.8	3	4.1	12	16.2	15.577**
and Arts										
	< 58	60	44.4	11	8.1	20	14.8	44	32.6	
Education	≥ 58	52	51.0	6	5.9	14	13.7	30	29.4	0.982
	< 58	53	49.5	6	5.6	11	10.3	37	34.6	
*: p<0.05, **	:p<0.01,	***: p<	<0.001							
	11							11		W. W.
				Table 3	$\cdot v^2$	Fest hv	gender			
				10010 5	$\cdot \lambda$	iest by	Sender			
College of		good		regress	sive	progres	ssive	backwa	ard	χ^2
College of		good Freq.	%	regress Freq.	sive %	progres Freq.	ssive %	backwa Freq.	ard %	χ^{2}
College of Science	male	good Freq. 26	% 29.9	regress Freq. 7	. χ sive % 8.0	progres Freq. 14	ssive % 16.1	backwa Freq. 40	ard % 46.0	χ ² 20.624***
College of Science	male female	good Freq. 26 33	% 29.9 66.0	regress Freq. 7 4	sive % 8.0 8.0	progres Freq. 14 7	ssive % 16.1 14.0	backwa Freq. 40 6	ard % 46.0 12.0	χ ² 20.624***
College of Science Humanities	male female male	good Freq. 26 33 18	% 29.9 66.0 31.6	regress Freq. 7 4 8	sive % 8.0 8.0 14.0	progres Freq. 14 7 5	ssive % 16.1 14.0 8.8	backwa Freq. 40 6 26	ard % 46.0 12.0 45.6	χ ² 20.624*** 13.475**
College of Science Humanities and Arts	male female male	good Freq. 26 33 18	% 29.9 66.0 31.6	regress Freq. 7 4 8	5ive 96 8.0 8.0 14.0	progres Freq. 14 7 5	ssive % 16.1 14.0 8.8	backwa Freq. 40 6 26	ard % 46.0 12.0 45.6	χ ² 20.624*** 13.475**
College of Science Humanities and Arts	male female male female	good Freq. 26 33 18 115	% 29.9 66.0 31.6 54.5	regress Freq. 7 4 8 26	sive % 8.0 8.0 14.0 12.3	progres Freq. 14 7 5 22	ssive % 16.1 14.0 8.8 10.4	backwa Freq. 40 6 26 48	ard % 46.0 12.0 45.6 22.7	χ ² 20.624*** 13.475**
College of Science Humanities and Arts Kinesiology	male female male female male	good Freq. 26 33 18 115 26	% 29.9 66.0 31.6 54.5 29.9	regress Freq. 7 4 8 26 7	sive % 8.0 14.0 12.3 8.0	progres Freq. 14 7 5 22 14	ssive % 16.1 14.0 8.8 10.4 16.1	backwa Freq. 40 6 26 48 40	ard % 46.0 12.0 45.6 22.7 46.0	χ ² 20.624*** 13.475** 9.821*
College of Science Humanities and Arts Kinesiology	male female male female male female	good Freq. 26 33 18 115 26 54	% 29.9 66.0 31.6 54.5 29.9 60.0	regress Freq. 7 4 8 26 7 9	x x y sive % 8.0 8.0 14.0 12.3 8.0 10.0	progres Freq. 14 7 5 22 14 13	ssive % 16.1 14.0 8.8 10.4 16.1 14.4	backwa Freq. 40 6 26 48 40 14	ard % 46.0 12.0 45.6 22.7 46.0 15.6	χ ² 20.624*** 13.475** 9.821*
College of Science Humanities and Arts Kinesiology Education	male female male female male female male	good Freq. 26 33 18 115 26 54 11	% 29.9 66.0 31.6 54.5 29.9 60.0 28.9	regress Freq. 7 4 8 26 7 9 2	x x y sive % 8.0 8.0 14.0 12.3 8.0 10.0 5.3	progress Freq. 14 7 5 22 14 13 3	ssive % 16.1 14.0 8.8 10.4 16.1 14.4 7.9	backwa Freq. 40 6 26 48 40 14 22	ard % 46.0 12.0 45.6 22.7 46.0 15.6 57.9	χ ² 20.624*** 13.475** 9.821* 12.367**

Table 4: χ^2 Test by the scores of the university entrance exam

*: p<0.05, **: p<0.01, ***: p<0.001

D. The admissions pipeline

There are three types (Type A, Type B, Type C) of university enrollment. There are three types of university enrollment. Most of the students of the College of Kinesiology is admitted through independent enrollment, in the College of Kinesiology, we discuss four types (addition Type D). By χ^2 test, in the College of Humanities and Arts and the College of Kinesiology, there is a significant correlation between the admissions pipeline and the semester achievement trend. The relationship is not significant in other colleges. In the College of Kinesiology, regarding the semester achievement trend, the admissions pipeline belongs to "Type A", "Type B", and "Type C", they with the highest percentage of "good", 64.3%, 55.9%, and 66.7% respectively. And in "Type D", the ratio of "good" is lower than other types. In the College of Education, regarding the semester achievement trend, the admissions pipeline belongs to "Type A" has a fairly high percentage. It indicates that students admitted in this way are significantly better than other types. The result of data analysis is in Table 5.



College of		good		regres	regressive		progressive		ard	χ^2
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	-
Science	А	13	52.0	2	8.0	3	12.0	7	28.0	4.583
	В	8	40.0	2	10.0	2	10.0	8	40.0	
	С	20	32.8	5	6.6	14	23	23	37.7	
Humanities	А	17	73.9	2	8.7	3	13.0	1	17	7.993
and Arts	В	31	50.8	6	9.8	8	13.1	16	26.2	
	С	64	49.2	11	8.5	14	10.8	41	31.5	
Kinesiology	А	9	64.3	2	14.3	2	14.3	1	7.1	24.491**
	В	19	55.9	1	2.9	9	26.5	5	14.7	
	С	16	66.7	1	4.2	5	20.8	2	8.3	
	D	99	45.2	26	11.9	21	9.6	73	33.3	
Education	А	19	86.4	0	0	0	0	3	13.6	15.869**
	В	20	42.6	4	8.5	8	17.0	15	31.9	
	С	68	44.7	9	5.9	19	12.5	56	36.8	
*: p<0.05, **	*: p<0.01	, ***: p	<0.001		J	())			11

Table 5 : χ^2 Test by admissions pipeline

E. The household registration area

There is no significant correlation between the household registration area and the semester achievement trend. It indicates that the household registration area does not affect the student's learning outcomes. From Table 6, the semester achievement trend of different colleges is not the same. In the College of Humanities and Arts and the College of Kinesiology, students from eastern Taiwan have a very high rate of "regressive". They should pay more attention to these students from eastern Taiwan.

Table 6 : χ^2 Test by household registration area										
College of		good		regres	regressive		progressive		ard	χ^2
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Science	Ν	43	43.0	6	6.0	17	17.0	34	34.0	6.251
	С	5	33.3	2	13.3	1	6.7	7	46.7	
	S	8	47.1	2	11.8	3	17.6	4	23.5	
	Е	3	60.0	1	20.0	0	0	1	20.0	
Humanities	Ν	89	47.6	23	12.3	18	9.6	57	30.5	16.683
and Arts	С	26	59.1	3	6.8	7	15.9	8	18.2	
	S	16	51.6	5	16.1	2	6.5	8	25.8	
	E	2	20.0	3	60.0	0	0	1	20.0	
Kinesiology	Ν	96	47.1	23	11.3	28	13.7	57	27.9	6.891
	С	17	54.8	2	6.5	4	12.9	8	25.8	
	S	23	56.1	3	7.3	2	4.9	13	31.7	
	E	7	46.7	1	6.7	4	26.7	3	20.0	
Education	Ν	81	47.1	11	6.4	23	13.4	57	33.1	1.852
	С	9	42.9	1	4.8	3	14.3	8	38.1	
	S	14	53.8	2	7.7	2	7.7	8	30.8	
	Е	4	50.0	0	0	1	12.5	3	37.5	

*: p<0.05, **: p<0.01, ***: p<0.001


F. The graduation high school category

There is no significant correlation between the graduation high school category and the semester achievement trend. It indicates that the graduation high school category does not affect the student's learning outcomes. The result of data analysis is in Table 7.

			n n							
College of	College of		good		regressive		progressive		ard	χ^2
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	-
Science	public	47	43.9	10	9.3	18	16.8	32	29.9	3.262
	private	8	42.1	1	5.3	1	5.3	9	47.4	
Humanities	public	105	50.0	27	12.9	18	8.6	60	28.6	2.563
and Arts										
	private	21	48.8	5	11.6	7	16.3	10	23.3	
Kinesiology	public	112	50.5	26	11.7	24	10.8	60	27.0	4.396
	private	30	44.8	4	6.0	12	17.9	21	31.3	
Education	male	87	47.3	10	5.4	26	14.1	61	33.2	3.705
	female	13	44.8	4	13.8	2	6.9	10	34.5	
*: p<0.05, **	[∗] : p<0.01,	***: p	< 0.001							

Table 7:	χ^2	Test by graduat	tion high schoo	l category
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Acknowledgment

The semester achievement trend has the highest proportion of good and backward. It means that most of the students in the university study will not change their original learning results. Departments should improve learning outcomes to increase the proportion of "progressive".

There is a significant correlation between gender and the semester achievement trend. In the College of Humanities and Arts, there is a significant correlation between the scores of university entrance exams and the semester achievement trend. The scores of the university entrance exam have little effect on the semester achievement trend. It is recommended that the proportion of the scores of the university entrance exam can be reduced to judge student admission criteria in a more effective way.

In the College of Kinesiology and the College of Education, there is a significant correlation between the admissions pipeline and the semester achievement trend. Different admissions pipeline has some influence on the semester achievement trend. Suggestions can be further explored. And make as a reference for the distribution ratio of various admissions pipeline.

There is no significant correlation between the household registration area and the graduation high school category and the semester achievement trend.

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4_Paper57

Performance Tasks Assessment: Its Challenges to Students

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ABSTRACT

An important element of real-world competence is the ability to apply knowledge and, moreover, to transfer knowledge and skills to real-world situations. This is where performance task assessment comes in as part of the educational reform brought about by the K to 12 Curriculum of the Department of Education. Several studies on the challenges to the curriculum planners and educators in the implementation of the performance-based assessment have been conducted. However, limited research has been done to look into the challenges encountered by the students during this implementation. Thus, this study was conducted. Utilizing a qualitative research design, this study used the phenomenological approach to explore the challenges encountered by Senior High School students in the implementation of the Performance Task Assessment. The data were collected from the six participants using the unstructured interview. The iterative process was observed during the interview until the researcher reached the saturation point. From the narratives of the participants, the following themes were culled out: unequipped leaders come with difficult execution of tasks, unplanned presentations come with lack of preparation, unarticulated tasks come with unsubstantial output, unreliable scores come with undefined rubrics, low performances come with the absence of skills, uninspired students come with unmotivated teachers, poor performances come with lack of supervision, and limited learning comes with the absence of understanding. It was also revealed in the narratives of the participants that the quality of learning through performance tasks is dependent on the quality of instruction. The transfer of learning, therefore, depends on how the tasks are carefully planned to suit the needs of the students in new situations. The findings provided the baseline data for designing a program called "Celebration of Learning", which is an articulated version of performance task assessment combining the learning in all subject areas in one performance.

Keywords: Performance Task Assessment, Celebration of Learning, Transfer of Learning, Quality Instruction, Performance and Assessment





Introduction

For several years, teachers have relied on standardized tests to assess students. However, research shows that these types of assessment do not always demonstrate what students know (Colley, 2008; Speers, 2008). As several authors emphasize, traditional assessments like pencil-and-paper tests are usually reductionist and do not measure the extent to which students have obtained a deeper comprehension of a topic or if they have learned complex skills like critical thinking or problem solving (Amrein & Berliner, 2002; Herrera, Morales & Murry, 2013). It is on everyone's awareness that an important element of real-world competence is the ability to apply knowledge and, moreover, to transfer knowledge and skills to real-world situations. This is where performance task assessment comes in as part of the educational reform brought about by the K to 12 Curriculum of the Department of Education (Zane, 2009).

One premise was that reforms in assessment would promote higher-order thinking among students (Kuhn, 1991). The teachers also wanted to create tasks that would not simply assess facts and skills in isolation but would require students to apply their knowledge in real-life contexts. This approach is supported by researchers who advocate revising assessment practices to support instructional changes that are based on how children learn (O'Day & Smith, 1993). In addition, the tasks needed to be as authentic as possible, requiring students to communicate their thinking and eliciting a range of responses (Wiggins, 1993).

Also, assessments are authentic if they test the learner's knowledge and skills in real-world situations, promote doing a task rather than reciting memorized content, and give students the opportunity to rehearse, obtain feedback on, and strengthen performance and products (Wiggins, 1998). With this goal in mind, the use of authentic assessment is rapidly growing in the classroom in the country. This authentic assessment would develop "real world" skills and problem-solving (Newmann et al. (1995).

Further, performance tasks should focus on application or transfer of learning. As discussed, Cognitive Flexibility Theory provides linkages for thinking about application and transfer, showing how students first construct knowledge in ways that facilitate application but then go on to a sort of double construction where they reshape the knowledge for transfer to new situations (Spiro, Feltovitch, & Coulson, 2007). The increased emphasis to performance-based assessment aims to provide appropriate performance assessment that will enable the Filipino learners to transfer their knowledge, understanding, and skills successfully in future situations (Deped, 2015).

In the modern years, several studies have been conducted on the challenges to the curriculum planners and educators in the implementation of this performance-based assessment (Hayati et al., 2017; Demir et al., 2019; Mustafa, 2012; Kristiawan & Elnanda, 2017). However, limited research has been done to look into the challenges encountered by the students during this implementation. Thus, this study was conducted.

The purpose of this study is to explore the lived experiences of Senior High School students in the implementation of Performance Tasks Assessment. Specifically, this study dwelt on the challenges the students encounter in the planning and performing of the task and how the teacher scores the performance. Further, the findings provided the baseline data for designing a program called "Celebration of Learning", which is an articulated version of performance task assessment combining the learning across subject areas in one performance.

Methodology

Utilizing a qualitative research design, this study used the phenomenological approach to explore the challenges encountered by Senior High School students in the implementation of the Performance Task Assessment. Phenomenology is an inductive descriptive method which aims to describe the participants' lived experiences (phenomena) in an attempt of drawing out its meaning (Holloway, 2005). The data were collected from the six participants using the unstructured interview. Creswell et al. (2003 cited in Petalla & Madrigal, 2017) suggested conducting an in-depth interview with 3 to 10 individuals and explained that the relevant point is the



description of the meaning of a small number of individuals who have experienced the phenomenon. The iterative process was observed during the interview until the researcher reached the saturation point; that is, no new insights can be developed from the participants. The process involved recursive textual data analysis, which involved organization, classification, categorization, search for patterns, and synthesis to cull out the insights from the transcribed interviews. Litchman's (2010) 3 C's- coding, categorizing, and identifying concepts was utilized to help the researcher achieve an in-depth, holistic understanding of the phenomena.

Results

The narratives of the participants on their lived experiences on the challenges they encountered in the implementation of the performance task assessment unveiled eight themes. These themes covered the following:

Difficult Execution of Task Comes with Unequipped Leaders. The accounts of the participants revealed their insights on the difficulty of the execution of task which is very much dependent on the quality of leaders leading the group. Good leadership comes with good communication skills, decision-making capability, creativity, knowledge, and skills of the task on hand, and the ability to work with the group harmoniously.

"I think what is important in planning is good leadership. There must be somebody to lead the group."

Unplanned Presentations Come with Lack of Preparation. The narratives of the participants demonstrated their insights on the challenges they encountered in terms of the quality of their presentation brought about by the lack of preparation. Students were not given ample time to meet with the group, plan, and practice in preparation for their presentation.

"Sad thing is, the teacher assigns the task very late that we have to rush just to finish it. Without careful planning and preparation, we cannot perform the task well."

Unsubstantial Output Comes with Unarticulated Tasks. Undefined tasks, tasks not planned, and not wellprepared are just some of the things that added to the challenges that the students encountered. These kinds of tasks eat up most of the students' time that leads to neglecting other important things they are still to do.

"Maybe the problem is on how the teacher presented the task. It is always not clear to us. Some teachers were not even prepared for the task they will require from us and just decide right there and then."

Low Performances Come with the Absence of Skills. The narratives of the participants articulated their insights on the importance of proper scaffolding before the performance tasks. Evidently, the development of the needed skills for the task is very significant for better performance. Teachers must begin by presenting the steps, processes, or strategies to students preparing them to perform on their own.

"It can be easier for us if our teacher prepares our skills for the task. Performance tasks are always complicated that sometimes we do not know what to do or how to do it."

Poor Performances Come with Lack of Supervision. The quality of performance is dependent on the quality of time the teacher spent with the students. The presence of the teachers would not only provide them the opportunity to assess students' progress, but it will also encourage students' engagement in the activity and not just to comply with the required tasks.

"Teachers must properly manage the time and if they can remind the teachers from time to time on the progress of the task preparation. Without those reminders, students tend to also forget the task on hand. The progress report can also be solicited from us."



Uninspired Students Come with Unmotivated Teachers. A motivated teacher is very vital in inspiring students to achieve what is there to achieve in a certain task. It is motivating them more than just for the completion of the task but inspiring them to see what is beyond the task that is more important. The kind of environment the teacher is creating would inspire the students to achieve more.

"We also need the motivation given to us by our teachers. If we see that teachers are motivated for the task and excited for the outcome, we are also motivated to make it to the best of our ability. We do not need pressure from the teachers because it will never help us."

Unreliable Scores Come with Undefined Rubrics. The reliability of the scoring system is one of the challenges encountered by the students, as revealed in the narrative of the participants. The quality of the rubrics and how the teacher made use of the rubrics are their concerns. Rubrics are supposed to assess the performance of students based on the objectives of the task, and teacher, therefore, must give the score with objectivity.

"We were also informed of how we will be graded by showing us the criteria and rubrics. However, I am not sure if the points given are fair since we also noticed that other groups are not doing their best in the performance, yet we were given the same score."

Limited Learning Comes with the Absence of Understanding. The accounts of the participants revealed their insights on the challenges they encountered in terms of the quality of learning they have from the performance task. They believe that quality learning goes with proper direction of teachers to students towards appreciation and understanding of the activity, thus, learning will surely take place.

"If this is something important to us, then we must be made aware of the reasons why. We will appreciate the task more if we understand the explanation of why we have this activity."

As a whole, It was revealed in the narratives of the participants that the quality of learning through performance tasks is dependent on the quality of instruction. The transfer of learning, therefore, depends on how the tasks are carefully planned to suit the needs of the students in new situations.

Discussion

It was revealed in the narratives of the participants that the quality of instruction performed by teachers is very significant in the quality of learning of students. The education profession, researchers, and policymakers all seem to agree that the quality of teaching makes an important difference in students' learning, their achievement, and their life chances (Cochran-Smith, 2003). This sentiment is supported by a growing body of research, indicating that teacher quality is the most important school-related factor influencing students' learning and achievement (Rice, 2003).

Further, providing students the opportunity to perform a task related to the real world situation would facilitate the transfer of learning. Transfer of learning occurs when experience or performance on one task influences performance on some subsequent task (Ellis, 1965 cited in Rutherford-Hemming, 2012). Moreover, McKeachie (1987 cited in Rutherford-Hemming, 2012) emphasized that there is a transfer of learning if there is the use of previous learning in a situation somewhat different from the situation in which learning took place.

From the narratives of the participants, they are expecting so much from the leader of the group. They support the idea that leaders are often chosen for possessing superlative, task-relevant knowledge (Bass, 1990; Hollander, 1964; von Rueden et al., 2014), thus, they are very dependent on him. However, recent studies have shown that the personality characteristics of group members are indeed fundamental to leadership effectiveness. Leaders cannot lead without followers. In any group task situation, followers are vital (Moore, 1976 cited in Olusegun, 1999). Therefore, group tasks must be more of a group effort.



The narratives of the participants disclosed their claims that the quality of their performance is dependent on the quality of their preparation. In the study of Alford and Shrewsbury (2013), it was perceived that the difficulty of the preparation and the time in making the preparation might influence student performance. This is, indeed, evident in the kinds of performance the students have when the time for preparation is neglected.

As shown in the participants' accounts, they considered the articulation of task affects the quality of output. This insight was supported by the idea that the quality of a product is largely dependent on the processes used to develop and maintain it. If the processes are not adequate, often, the end product will not meet the requirements (CERTIFICATION ENSURES QUALITY OUTPUT, 2006). If the task is undefined, it will only follow the quality of the output.

The skills of students affect their performance was revealed in the participant's narratives. They believe that they can perform better when they are prepared for it. Scaffolding is supposed to be a prerequisite in all tasks to be given to students. It is important to prepare them before letting them work independently on the task on hand. The concept of scaffolding was derived from Vygotsky's notion of the zone of proximal development, which emphasized the importance of guidance and support from adults and more capable peers (Vygotsky, 1978). The guidance is often provided by the teacher and as students gain mastery over the task, the teacher gradually reduces the frequency and amount of support until they are able to work independently (Danli, 2017).

Furthermore, students believe that good classroom supervision practices lead to excellent performances of students. Classroom supervision involves the time the teacher spent with the students in preparing for the task. The closes the teacher supervises his students, the better the students achieve. It is supported by the idea that the best practices in teacher supervision and evaluation stress establishing professional goals that are measured in terms of enhanced student learning (Feeney, 2007).

The narratives of the participants also disclosed their claims that teachers' motivation affects their performance in school. Also, the climate the teachers create in the classroom matters a lot to students. Teacher's involvement in providing students with social and emotional support is associated with the need for relatedness, care, and connection to others and is critical to supporting students' motivation, engagement, and sense of belonging (Juvonen, 2007; Ryan & Patrick, 2001; Kiefer et al., 2015).

The reliability of the scoring system is one of the challenges encountered by the students, as revealed in the narrative of the participants. They express their doubt on how the teacher give their grades despite the presence of the rubrics because they tend to compare scores. This is also one of the aspects of the implementation of performance task assessment that is needed to be considered. In assessment methods such as projects, case analysis, essays, portfolio, where the constructed responses given by students cannot be evaluated with complete objectivity, rubrics are considered an effective approach for achieving reliable (consistent) and valid (accurate) professional judgment of students' performances (Pellegrino et al. , 1999 cited in Reddy, 2011). Thus, if rubrics are properly designed and presented to students, there will be no doubt as to the quality of scores given to them.

Lastly, students should have clear direction of where they should be going. They must be made aware of what it is expected from them in all the activity they do in school. If the student does not see purpose for what he/she is learning, there is no need to put effort on what he/she is required to do in the class. No matter what the age of the students, knowing exactly the purpose of what they are doing will enhance their learning. There should be a real meaning for every activity in the class (Miño-Garcés, 2009). Instruction and assessment are more meaningful to students when they reflect or simulate problems, issues or situations one might encounter in the world outside the classroom (Newmann, 1996).

Conclusion

The main purpose of having a performance task as part of the curriculum is to facilitate the transfer of learning. However, this will only be made possible if the task is properly planned, implemented, and assessed. It is obvious in the result of the study that the quality of learning through performance tasks is dependent on the



quality of attention given by the teachers in terms of classroom instruction, supervision, and direction. Further, both the teacher and the students should be aware of the goal that ought to be achieved with the task given.

The transfer of learning, therefore, depends on how the tasks are carefully planned to suit the needs of the students in new situations. The knowledge and skills of students must be applied to something meaningful to them to effect learning which is the main goal of performance task. With the transfer of learning, students will be equipped with the needed skills and be prepared of dealing the future.

Recommendations

To aid students in overcoming the challenges they encountered in the implementation of the performance task assessment, the following recommendations were suggested: (a) The curriculum planners must restudy the implementation of the performance task assessment by reviewing the program planning process-including students in the process, assessing accurately learners' perception of need and motivation to learn and identifying barriers and challenges to improve the program, (b) the school administrators have to give priorities to faculty development in terms of the implementation of performance task assessment. They must equip teachers with knowledge and skills on how to go about the assessment to answer the challenges encountered by the students in school so that they will be prepared not only for their college years but also for the world of work , (c) teachers must spend enough time planning for the task to be given to students. Their supervision and support must always be visible to students. Well- prepared rubrics must also be considered to be presented to students after assigning the task for them to be guided accordingly and to lessen their doubts on the quality of score they got and (d) researchers must conduct a more comprehensive research on the challenges encountered both by teachers and students in the implementation of the performance task assessment to cull out more insights for the improvement of the school's assessment program.

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Effect of Using Cooperative Learning in Food Quality Control Course for Ramkhamhaeng University's Students

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ABSTRACT

This study employed quasi-experiment one-group pretest-posttest design. The main objectives were (1) to develop the lesson plan on cooperative learning in Food Quality Control Course (FQCC) and (2) to compare the student's academic score and student's satisfaction due to receiving the cooperative learning in FQCC. Samples were 25 university students major in Food Service Industry or Food and Nutrition at Ramkhamhaeng University, Thailand. Research instruments included (1) questionnaire on student's satisfaction, (2) the pretest-posttest examination and (3) the lesson plans on cooperative learning. Results revealed that (1) %Gain Score (%GS) on average was 50.3, representing the higher score of posttest than pretest approximately 50.3% (2) The comparison of pretest-posttest score analyzed by Wilcoxon Matched-Pairs Signed-Rank Test (WSR) represented the significantly higher score of posttest than pretest at the level of .01, assuring the effectiveness of the cooperative learning. Lastly, (3) on average, students were very satisfied with the teaching method of cooperative learning in the course of FQCC. Implication for teachers and practitioners are also discussed.

Keywords: Cooperative Learning, Food Quality Control Course, Ramkhamhaeng University





Introduction

Technological and social advancement happening at a breakneck pace has caused rapid changes and disruptions in the social structure around the world. So the country accelerates the development of their human capital and infrastructure to keep in pace with the digital world (The Government Public Relations Department, 2016(. The Thai government wants to improve the ability of people, supporting education.

Ramkhamheang University (RU), Thailand, is an open-admission university. A description of how teaching and learning organized at RU gives a rough picture of the rationale for this study. RU has different processes and procedures in conducting academic activities in a number of ways from other conventional universities. Interested individuals can readily apply for admission without having to take an entrance examination; they only need to have a high school education. Classes are provided like any other universities but are not compulsory and there have academic supports and student activities like any other university. Some courses that require hands-on experience in the classroom or practicum are left to the discretion of the instructors to manage their student attendance. With this policy, it means students attending RU are a cohort of rather diverse individuals in terms of age, gender, educational background, interest, socio-economic status, and potential.

Food Quality Control Course (FQCC) is the main course for foods and nutrition of students, Department of Home Economics in the Faculty of Education. FQCC includes both theory and practice, which in practice makes a better understanding of the theory. It's about food safety; dangers resulting from food ingredients and quality control, including the importance of food quality control, methods, tools, and equipment in food quality control to meet the safety and consumer demand. The content is large and difficult to understand. From the past record, many students fail an exam in this course. It made students unable to graduate. Therefore, this study aims to identify what teaching methods or way to study allow students to pass the exam.

Cooperative Learning is a teaching method to promote cooperative, competitive, or individualistic efforts for a students' learning goals. In the classroom, activities aim at accomplishing goals and are conducted under a goal structure. The goal structure specifies the ways in which students interact with each other and the teacher during the instructional session. Each goal structure has its place (Johnson & Johnson, 1999). Cooperation is works together, interaction for the same goal of students, use to small groups. When students feel the positive support of other group members, they are motivated to succeed and to help others succeed. Cooperative learning requires positive interdependence among group members to assure appropriate group commitment among members. Interdependence among group members leads to individual accountability to group goals. Students who are dependent on other group members develop a sense of commitment toward the group. Students engaged in cooperative learning tend to be more active in providing feedback and input into group projects and activities (Tsay & Brady, 2012). Cooperative Learning is useful in teaching many data and helps increase motivation in learning.

Cooperative Learning is a suitable teaching method in FQCC which is a large data and practicum course. This study aims to identify the effect of using cooperative learning for FQCC and the satisfaction of using cooperative learning.

Research objective

- 1. To develop the lesson plan on cooperative learning in Food Quality Control Course (FQCC) among university's students at Ramkhamhaeng University
- 2. To compare the student's academic score and student's satisfaction due to receiving the cooperative learning in FQCC

Methodology Population and samples

The population of the study was 49 students who enrolled in the Food Quality Control Course (FQCC) at Ramkhamhaeng University during the 2nd semester of 2018 (Academic Services and Evaluation Office RU, 2019).



The sample was 25 students recruited through the method of purposive sampling, followed by the inclusion criteria of (1) they were major in Food Service Industry or major in Food and Nutrition, (2) they were full-time students and able to attend the course of FQCC greater than 80% and (3) they were volunteer to participate in the study. The sample size was considered through Yamane's calculation with Type 1 error of .05, the adequate sample size should be at least 44. However, participants who able to attend the course as identify in the inclusion criteria were only 25 students. Therefore, all those students were recruited in this study, representing 51.02% of the total population. Small sample size should be concern for further analysis and limitation to the study.

Instruments

This study employed quasi-experiment one-group pretest-posttest design with small sample size, the instruments were included (1) questionnaire on student's satisfaction, (2) the pretest-posttest examination and (3) the lesson plans on cooperative learning.

1. Questionnaire on student's satisfaction

This questionnaire designed for assess the student's satisfaction through cooperative learning. It included 9 questions with 5-point Likert scale (ranging from 1 = very unsatisfied to 5 = very satisfied). The questionnaire tested of its internal reliability with 30 participants who enrolled in the FQCC course in previous semester, the coefficient was $\alpha = .82$ representing high internal consistency.

2. The pretest-posttest examination

The pretest and the posttest examinations were designed in parallel for assessing the student's academic performance due to receiving the cooperative learning. Each examination composed of three open-ended questions with the total score of 25. The question tested of its validity by three professional in the field of Education and Home Economics. Scoring the answer employed Rubric system with interraters scoring (two raters scored on each question separately, and calculated for the mean).

3. The lesson plans on cooperative learning

The lesson plans on cooperative learning was the focused independent variable in this study. The plan composed of six issues i.e. (1) Analyzing the characteristic of food quality, (2) Measuring the quality of food (3) Analyzing the changes of food quality (4) Finding critical control points of food task in Hazard Analysis and Critical Control Points (HACCP, is a systematic preventive approach to food safety from biological, chemical, and physical hazards in production processes that can cause the finished product to be unsafe and designs measures to reduce these risks to a safe level.) (5) Creating a master recipe of beverage and repeatedly trial until the recipe as same as master recipe (6) Creating a master recipe of jelly and repeatedly trial until the recipe as same as master recipe. Each issue employed the process of cooperative learning within 4 activities i.e. (1) divided the students into groups, 3-5 students/group, (2) assigned specific tasks or problems to each group e.g. the task of analyzing the characteristic of food quality in sweets/snack, the task of creating a master recipe and repeatedly trial until the recipe was the prototype- indicating the quality control, (3) students were asked for collaboratively work to achieve the tasks, and finally (4) students gave a conclusion and shared to each others. It took 6 weeks as a total (one issue per week). This cooperative learning plan was tested of the IOC by three professional in the field of Education and Home Economics for each issues and the completed plan. All the issues and completed plan showed the IOC ranging from .67 to 1, the IOC less than .5 were already revised or deleted - representing validity of this lesson plans on cooperative learning.

Procedure

Prior to the experiment, participants were informed about the study's purpose and procedure, duration of participation and voluntariness. They were assured of their confidentiality and able to withdraw from the study as needed.

Data analysis



The statistical standards were employed for analyzing the data as followed;

- Descriptive statistics, including of mean, standard deviations, frequency and percentile were used to represent demographic characteristic, academic score and course satisfaction of the students

- Gain Score (GS) was calculated for representing the student's score improvement without being influenced by the full score (Kanjanawasee,2013). The calculation formula for GS was as followed;

 $GS = \frac{(Y-X)}{(F-X)} \times 100$ Y = Pre-test score X = Post-test score F = Full score

- The statistic of Wilcoxon Matched-Pairs Signed-Rank Test (WSR) was used to compare student's academic score and student's satisfaction due to receiving the cooperative learning in FQCC

Results

The results were presented in three parts; (1) Demographic characteristic of the students, (2) Gain Score to represent score improvement of the students and (3) Comparison of student's academic score and student's satisfaction due to receiving the cooperative learning in FQCC as followed;

Part 1: Demographic characteristic of the students

Participants were 25 students (2 males and 23 females) who enrolled in the Food Quality Control Course (FQCC) at Ramkhamhaeng University during the 2nd semester of 2018. Most of students majored in Food Service Industry (68%) and also were 3rd students (52%), as presented in Table 1.

Table 1: Demographic characteristic of the students

Demographic characteristic	N(%)
Gender	
Males	2 (8%)
Females	23 (92%)
Academic year	
3 rd years of study	13 (52%)
4 th years of study	12 (48%)
Major of the study	
Food Service Industry	17 (68%)
Food and Nutrition	8 (32%)

Part 2: Gain Score (GS)

GS is a method for calculating student's score improvement after receiving the cooperative learning in FQCC, the GS formula is presented above. The results indicated that the posttest also showed higher score than pretest for students, especially the maximum %GS was 85.7%. %GS on average was 50.3, representing the higher score of posttest than pretest approximately 50.3%. In addition, the minimum %GS was 26.3%. Details were presented in **Table 2**.

Table 2: Gain Score to indicate the score improvement of the student

ID	Pre-test score	Post-test score	%Gain Score (%GS)
1	6.0	16.0	52.6
2	7.0	15.0	44.4
3	6.0	16.0	52.6
4	7.0	15.5	47.2
5	8.0	16.0	47.1
6	6.0	16.0	52.6
7	7.0	15.0	44.4
8	12.0	22.0	76.9
9	9.0	15.0	37.5
10	8.0	17.0	52.9
11	7.0	15.5	47.2
12	11.0	23.0	85.7
13	10.0	19.0	60.0
14	8.0	18.0	58.8
15	6.0	12.0	31.6
16	6.0	16.0	52.6
17	6.0	13.0	36.8
18	8.0	14.0	35.3
19	6.0	11.0	26.3
20	6.0	12.0	31.6
21	7.0	17.0	55.6
22	6.0	16.0	52.6
23	8.0	22.0	82.4
24	7.0	15.5	47.2
25	7.0	15.0	44.4
Average	7.4	16.1	50.3
Standard deviation	1.6	2.9	14.7

The %GS was summarized in terms of its level of improvement as in **Table 3**. The highest improvement considered through change of 76-100%GS (n=3), high improvement considered through change of 51-75%GS (n=9), moderate improvement considered through change of 26-50%GS (n=13) – most of the students had score change within this level. While there was no students had low improvement considered through change of 0-25%GS

%GS	N (%)	Level of improvement*
76-100	3 (12%)	Highest
51-75	9 (36%)	High
26-50	13 (52%)	Moderate
0-25	0 (0%)	Low

*Source: The level of improvement by %GS was referenced in (Kanchanavasri,2013)

Part 3: Comparison of student's academic score and student's satisfaction due to receiving the cooperative learning in FQCC



The comparison of pretest-posttest score due to receiving the cooperative learning in FQCC was analyzed by Wilcoxon Matched-Pairs Signed-Rank Test (WSR). Results revealed that posttest score was significantly higher than pretest score at the level of .01, indicating the effectiveness of the cooperative learning for our students as presented in **Table 4**.

	Min	Max	Mean (SD)	Statistic Value	p-value
Pretest	6	12	7.40 (1.63)	-4.394**	<.001
Posttest	11	23	16.10 (2.96)		

Table 4: Comparison of student's academic score (Pretest-Posttest)

**p-value <.01

The student's satisfaction due to receiving the cooperative learning in FQCC was also presented in **Table 5**. On average, students were very satisfied (mean = 4.6, SD = .5) with the teaching method of cooperative learning in the course of FQCC. The highest satisfaction were working together (item 5) and enhance quality of tasks (item 8).

Table 5: Student's satisfaction due to receiving the cooperative learning in FQCC

items	Mean (SD)	Interpretation
1. Student feel satisfied with cooperative learning	4.4 (.6)	Satisfied
2. Cooperative learning enable student to increase	4.4 (.8)	Satisfied
interpersonal relationship		
3. Cooperative learning enable student to share their	4.6 (.7)	Very satisfied
experience with others		
4. Student enjoys with the cooperative learning	4.6 (.5)	Very satisfied
5. Cooperative learning involves student working	4.7 (.5)	Very satisfied
together.		
6. Cooperative learning enhances the understanding to	4.6 (.6)	Very satisfied
the course's content		
7. Overall, the cooperative learning makes students	4.6 (.7)	Very satisfied
happiness	a	
8. Cooperative learning enhance quality of tasks	4.7 (.5)	Very satisfied
9. Overall satisfaction.	4.6 (.5)	Very satisfied

The interpretation of the score: 0-1.50 = very unsatisfied; 1.51-2.50 = unsatisfied; 2.51-3.50 = moderate; 3.51-4.50 = satisfied; 4.51-5.0 = very satisfied

Discussion

Our study provided the discussion on the effectiveness of cooperative learning as a teaching method for enhancing student's academic performance and student's satisfaction. Our findings showed significant higher academic score of posttest that pretest at the level of .01, %GS =50.3. Concordance with the study of Kamonpad Mansilp (2011), A Comparison of Mathematics Learning Achievement of the First Year Commercial Students at the Certificate of Vocational Education on "Set" between the Groups by Using Co-operative Learning and Expository Method at Chanthaburi Teachnical College and the study of Panyaporn Samsee. (2017), The Development of Learning-Centered Instructional Packages through Co-operative Learning on the Topic of Buddhist Roles in Social Studies Religion and Culture Learning Areas for Mathayom Suksa I Students. They also assured the cooperative learning to develop the student's academic performance.



Moreover, our student reported very high satisfaction with the teaching method of cooperative learning in the course of FQCC. Concordance with the study of Tanutchaporn Namwat (2018), The Teaching Using Cooperative Learning in Chinese language curriculum for teacher Courses of Student in Chinese major students Faculty of Education Ramkhamhaeng University also confirmed the cooperative learning is made the student's Ramkhamhaeng University happy.

Students who used cooperative learning comment about this course, are able to exchange knowledge and know how to deal with problems. Although opinions within the group of students were different but they still listened to each other and cooperated well. They also helped each other, and consulted and discussed various opinions to make the work better, Group work allowed students to talk more to each other. And it built relationships between friends. And, students was able to share their knowledge how they comprehend the content.

Conclusion and Recommendations

RU is an open-admission university, and its processes and procedures in conducting academic activities are different in a number of ways from other conventional universities. Interested individuals can readily apply for admission without having to take an entrance examination; they only need to have a minimum of high school education. By law, classes are provided like any other universities but are not compulsory; academic support and student activities must be provided full-scaled like any normal university. Many courses are left to the instructors to manage their student attendance.

With this policy, it means students attending RU are a cohort of rather diverse individuals in terms of ages, genders, educational backgrounds, interests, socio-economic status, and potential. Using cooperative learning is a good way for students as it provides positive interdependence involves students working together. It also allows them to support each other in contributing to the entire group's learning outcomes.

Using Cooperative Learning in Food Quality Control Course for Ramkhamhaeng University's Students have improved the ability to understand Food Quality Control. It's shown in Pre-test score, Post-test score and % Gain Score to reflection process that builds commitment to group success and it's one of the key elements of cooperative learning. And students were very satisfied with the teaching method of cooperative learning in the course of FQCC.

When using cooperative learning, the researcher should understand the nature of social interdependence. Social interdependence is created when goals are structured so that the accomplishment of a person's goal is affected by others' actions. The interdependence may be positive which results in individuals working cooperatively to achieve their mutual goals or negative which results in individuals competing to see who will achieve the goal. The absence of interdependence indicates no connection between people's attempts to achieve their goals.

In cooperative situations, if students acts positively, this affects other students to act positively. In competitive situations, the opposite psychological processes may be found. The fundamental premise of social interdependence theory is that the way in which goals are structured determines how individuals interact, and those interaction patterns create outcomes.

Any learning situations in any subject area with any age students and with any curriculum can be structured cooperatively.

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4_Paper79

Behaviors and Needs of Digital Literacy Development of Early Childhood Education Candidate Teachers in Thailand Open University

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ABSTRACT

This research aims to study and compare behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University through the different study approaches. The present study was survey research. The data collection tools consisted of 1st step; questionnaire approach provided for 6 instructors teachers (3 from each university) and 10 candidate teachers (5 from each university) and 2nd step; behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand's Open University 5-level questionnaire approach consisted of 32 sections. This questionnaire found that its reliability was 0.97 and the data was collected from 227 target representatives. The data analysis was conducted through percentage, average, standard deviation, and t-test distribution. The result found that early childhood education candidate teachers had high level of digital literacy behavior and need. After compared early childhood education candidate teachers had high level of digital literacy behavior and need between both universities found that there were no different.

Keywords: Behaviors and Needs, Digital Literacy, Candidate Teacher, Early Childhood





Introduction

During the current economic and social situations, information technology is the main factor that evolves education and marketing to found many new professions but also lower some careers' importance. Those high knowledge development rate factors provide some obvious lifetime learning process trends. However, previous study approaches could not support lifetime career opportunity furthermore therefore any professions have to adapt and be ready to learn anything new all the time as well as many industries should improve their employees' skill. Appropriate learning approaches during this information technology age are technology applicable approach for mass proper learning needs and individual learnable skills providing like Massive Open Online Courses (MOOCs) or any other leaning media like images, sounds, videos, social networks, and games so they are the opportunities for new generation to choose their best learning approach. The popular online platform has its own accomplished samples that are broadly worldwide throughout the country and foreign countries and conform to new generation behaviors which are able to be achieved and changed in the near future such as Massive Open Online Courses (MOOCs), videos (Youtube), computer games, social media, and Audiobooks and Podcasts (http://www.okmd.or.th/okmd-opportunity/FutureLearningPlatform/899/Digilearn infographic). Digital Citizens are the residents who always access to digital and social media with their appropriate action norm and technology application responsibility especially digital communication is the limitless communication (https://www.thaihealth.or.th/Content/48161%20(Digital%20Citizenship).html).

While university study is insufficient since there are many new knowledge to learn. Nowadays, people are trying to learn anything new among technology advance and digital economy development that let people need to connect and access to digital world all the time or it might say that digital world is a part of current learning processes so "Digital Literacy" is the main factor to create many new opportunities and challenges in this learning age and on 12th September 2018, there was an announcement of Thai Qualifications Framework for Higher Education about the bachelor's degree digital capacity in order to conform to 21st century learning skills, Thailand 4.0 Education, and human resources recruitment and development framework to cope with digital society for defining 5th aspect learning standard method; numerical analysis, communication, and information technology with necessary skill like need applicable bachelor's degree basic skill. Every university in Thailand provides bachelor's degree curriculum so digital competency needs to be integrated to have skillful graduates therefore the researchers suggest that any Open Universities should be responsible to provide digital media for students which there are only 2 universities in Thailand provide this curriculum; Ramkhamhaeng University and Sukhothai Thammathirat Open University. Both universities have the same qualification; limitless Open University but provide different teaching approaches that is Ramkhamhaeng University students are able to attend the classrooms or not and Sukhothai Thammathirat Open University students do not have to attend the classrooms but they need to study through online or other media. From the difference aspect of both universities, the researchers need to study and compare behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University in order to be applied as digital literacy development basic information from students of both universities.

Research Objective

To study and compare behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University

Methodology

1st Step: To study behaviors of digital literacy development of early childhood education candidate teachers in Thailand Open University

- 1. The study of digital literacy behaviors was conducted through textbooks, concepts, principles, and related behaviors of digital literacy development of early childhood education candidate teachers in Thailand Open University researches and then synchronized interview records.
- 2. The interview records were divided into 3 groups.



1st Group: 2 digital media experienced-early childhood education instructors from each university (including 4 instructors).

2nd Group: technology program instructor from each university who has early childhood education teaching experiences (including 2 instructors).

3rd Group: 5 early childhood education candidate teachers from each university (including 10 candidate teachers).

3. Content Analysis was synchronized and the collected into completed questionnaires in order to collect the further information.

Research Tools of 1st Step: The data collection tool of this research is semi-structured interview.

2nd Step: The study of behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University.

Target Representatives: The target representative consisted of 2nd semester 2018 early childhood education internship students. There were 86 students from Ramkhamhaeng University and 141 students from Sukhothai Thammathirat Open University.

The data collection tool was a set of behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University questionnaire which conducted through documents and interview review from 1st step and divided into 2 sections; 1st section; basic information and 2nd section; 32 questionnaires of behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University with 4 aspects; 1) Use, 2) Understand, 3) Create, and 4) individual digital media application skill through 5-level Rating Scale Method. The research tool was applied to investigate context accuracy from 3 experts. It was found that IOC (Index of Item-Objective Congruence) was between 0.67-1.00 and applied to Try Out with 30 students who have the same qualification of target representatives in order to find reliability through Cronbach's alpha coefficient and it was 0.97.

Data Collection and Analysis

The researchers collected the data from early childhood education students who are going to attend internship project in 2nd semester, 2018 academic year since the students from both universities are not forced to attend the classrooms and their internship schedules are different so the representatives were chosen from internship students which divided as;

- 86 students from Ramkhamhaeng University
- 141 students from Sukhothai Thammathirat Open University

The data analysis was analyzed these statistical approaches

- 1. Basic data was analyzed through frequency and percentage approaches
- 2. Behaviors and needs of digital literacy development was analyzed through average and standard deviation approaches
- 3. Independent-samples t-test was conducted to compare between both universities

Results

1. The result of early childhood education students' digital literacy behavior

study from Semi-structured interview. After that Content Analysis was categorized into 4 aspects in order to provide the further questionnaires with the following details;

1) Use: is the technology, computer, digital media, and digital media English knowledge, tools selection and application, data searching, university digital media access, and various digital media application

2) Understand: is the digital media analysis, identification, and assessment, communication manners and responsibilities, copies and rights code of conduct, online media security, software and applications using comprehension to support teaching approaches and be appropriate for early childhood education.



3) Create: is online communication and cooperation, knowledge broadcasting, and various digital media production in order to develop, create networks, and share any data through digital media.

4) Individual digital media application skill: Facebook, Line, Instagram, Tutorials on Youtube ,Google Hangout, Google Classroom, Youtube Channel, and BlackBoard Video Conference Application.

2. Basic data of the questionnaire respondents from 227 early childhood

education program students which divided as 86 students from Ramkhamhaeng University and 141 students from Sukhothai Thammathirat Open University. 175 students (77.10%) were 20-29 year-old and 52 students were over 30 year-old (22.90%). 188 students (82.80%) applied for the universities with high school or vocational certification, 30 students (13.20%) applied for the universities with bachelor's degree and 9 students (4.00%) applied for the universities with higher vocational certification respectively.

3. Behaviors and needs of digital literacy development of early childhood

education candidate teachers in Thailand Open University comparison was identified into following 1-4 tables

1st Table found that student behavior of digital literacy development from Ramkhamhaeng University and Sukhothai Thammathirat Open University was in high level. After considered each aspect found that behavior of digital literacy development in entire aspects were in high level with these following details;

1. Ramkhamhaeng University students' need of digital literacy development was in high level (4.13%) After considered each aspect found that every aspect was in high level with these following details;

- 1.1 Use: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were data searching tools use (4.26%), various learnable technology, computer, and digital media knowledge (4.14%), and data sources reliability checking (4.06%) respectively.
- 1.2 Understand: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were digital media communication manners and responsibilities (4.30%), copies and rights code of conduct (4.21%), and online security of data storage, data protection, and personal images (4.13%) respectively.
- 1.3 Create: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were online communication and cooperation (4.24%), digital media communication and knowledge broadcasting method searching (4.01%), and reflected digital information create to resolve or support society and community problems (4.00%) respectively.
- 1.4 Individual digital media application skill found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were Youtube (4.77%), Line (4.74%), and Facebook (4.73%) respectively.
- 2. Sukhothai Thammathirat Open University students' need of digital literacy development was in high level (3.92%) and after considered entire aspects found that;
- 2.1 Use: found that students' need of digital literacy development was in high level and after considered each aspect found that first three aspects were data searching tools use (4.30%), various learnable technology, computer, and digital media knowledge (4.17%), and university and various digital media knowledge and access (3.96%) respectively.
- 2.2 Understand: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were digital information related laws knowledge and understand (4.16%), online security of data storage, data protection, and personal images (4.03%), and digital media communication manners and responsibilities and software application understand especially virus protection software for learning management (4.01%) respectively.
- 2.3 Create found that students' behavior of digital literacy development was in high level after considered each aspect found that first three aspects were various digital media productions in order to develop the learning approaches by reducing applied letters and instead of learning pictures providing called



"photographic" (4.13%), online media communication and cooperation (4.01%), and digital media interesting presentation (3.99%) respectively.

2.4 Individual digital media application skill: found that students' behavior of digital literacy development was in high level after considered each aspect found that first three aspects were website tutorials (4.60%), Youtube (4.59%), and Youtube Channel (4.52) respectively.

	Behavior of digital literacy		RU	J		STO	U
		Mean	S.D.	Practical	Mean	S.D.	Practical
				Level			Level
1	Technology, computer, and digital	4.14	.69	High	4.17	.59	High
	media adapted with various education			E .			
	approaches						
2	English skill efficiency especially digital media vocabularies	3.55	.81	High	3.45	.88	High
3	Proper digital media situations choosing efficiency	3.85	.74	High	3.84	.67	High
4	Data searching tool use	4.26	.74	High	4.30	.71	High
5	Data sources reliability checking	4.06	.67	High	3.91	.70	High
6	University digital media knowledge and access	4.03	.76	High	3.96	.77	High
7	Various digital media using for each study course	3.99	.79	High	3.96	.74	High
Use	11.651	3.98	.56	High	High	.54	High
8	Useful education digital media analysis, identification, and assessment	4.08	.71	High	3.94	.54	High
9	Digital media communication manners and responsibilities	4.30	.67	High	4.01	.73	High
10	Digital information laws knowledge and understand	3.93	.73	High	4.16	.75	High
11	Copies and rights code of conduct	4.21	.77	High	3.70	.80	High
12	Online security of data storage, data protection, and personal images	4.13	.70	High	4.03	.79	High
13	Software using knowledge and understand especially virus detection software for learning management	3.71	.81	High	4.01	.76	High
14	Proper teaching and early childhood education applications knowledge and understand	3.99	.74	High	3.67	.83	High
Un	derstand	4.05	.56	High	High	.64	High
15	Online media communication and cooperation	4.24	.75	High	4.01	.83	High

Table 1: Each behavior aspect of digital literacy development average and Standard deviation table



16	Communication method searching and knowledge broadcasting via digital media	4.01	.80	High	3.94	.64	High
17	Various digital media production for learning development by learning pictures providing called "photographic"	3.77	.81	High	4.13	.80	High
18	Interesting digital media presentations	3.95	.77	High	3.99	.76	High
19	Data and knowledge sharing networks via digital media	3.98	.80	High	3.84	.71	High
20	Reflected digital information providing to resolve and support social and community problems	4.00	.83	High	3.95	.76	High
21	Various websites or other channels seminar attendance	3.90	High	High	3.81	.72	High
Cre	ate	3.98	.65	High	3.90	.63	High
22	Facebook	4.73	.54	Highest	3.82	.80	High
23	Line	4.74	.54	Highest	3.70	.94	High
24	Instagram	4.01	1.11	High	3.89	.63	High
25	Website Tutorials	3.59	1.04	High	4.60	.67	Highest
26	Youtube	4.77	.48	Highest	4.59	.68	Highest
27	Google Hangout	4.09	1.00	High	4.23	1.03	High
28	Google Classroom	4.29	1.00	High	3.40	1.06	High
29	Youtube Channel	4.10	1.00	High	4.52	.69	Highest
30	BlackBoard	3.37	.95	High	3.60	1.09	High
31	Video Conference	3.65	.99	High	3.79	1.10	High
32	Application	4.11	.85	High	3.96	1.05	High
Ent Cho	ire Individual Digital Media	4.13	.56	High	High	.66	High
Tot	al	4.05	.45	High	High	.53	High

From table 2 found that Ramkhamhaeng University and Sukhothai Thammathirat Open University students' needs of digital literacy development was in high level. After considered each aspect found that need of digital literacy development was in high level for every aspect as following details;

1. Ramkhamhaeng University students' needs of digital literacy

development was in high level (4.13%) and after considered each aspect found that entire aspects were in high level as follows;

1.1. Use: found that students' need of digital literacy



development was in high level and after considered each aspect found that first three aspects were data various learnable technology, computer, and digital media knowledge (4.23%), data searching tool using (4.21%) and university and various digital media knowledge and access (4.19%) respectively.

- 1.2. Understand: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were online security of data storage, data protection and personal images (4.10%), software knowledge and understand especially virus detection software for learning management (4.09%), and digital media manners and responsibilities (4.08%) respectively.
- 1.3. Create: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were reflected digital information providing to solve and support social and community problems (4.16%), interesting digital media presentations (4.13%), and communication searching method providing and knowledge broadcasting via digital media (4.12%) respectively.
- 1.4. Individual digital media application skill: found that students'behavior of digital literacy development was in high level after considered each aspect found that first three aspects were Youtube (4.36%), Line (4.31%), and Facebook (4.28%) respectively.
- 2. Sukhothai Thammathirat Open University students' need of digital

literacy development was in high level (4.13%) and after considered each aspect found that entire aspects were in high level as follows;

- 1.1. Use: found that students' need of digital literacy development was in high level and after considered each aspect found that first three aspects were data various learnable technology, computer, and digital media knowledge (4.31%), data searching tool using (4.28%) and university and various digital media knowledge and access (4.24%) respectively.
- 1.2. Understand: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were study useful applications knowledge and understand (4.18%), online security of data storage, data protection and personal images (4.17%), and digital information laws knowledge and understand, software knowledge and understand especially virus detection software for learning management (4.16%) respectively.
- 1.3. Create: found that students' behavior of digital literacy development was in high level and after considered each aspect found that first three aspects were reflected digital information providing to solve and support social and community problems (4.13%), online media communication and cooperation (4.20%), and communication searching method providing and knowledge broadcasting via digital media (4.18%) respectively.
- 1.4. Individual digital media application skill: found that students' behavior of digital literacy development was in high level after considered each aspect found that first three aspects Youtube (4.28%), Line and Facebook (4.26%) respectively.

Table 2: Each need aspect of digital literacy development average and standard deviation table

Needs of digital literacy			RU			STOU		
		Mean	S.D.	Needs level	Mean	S.D.	Needs level	
1	Technology, computer, and digital media adapted with various education approaches	4.23	.78	High	4.31	.63	High	
2	English skill efficiency especially digital media vocabularies	4.16	.84	High	4.11	.80	High	
3	Proper digital media situations choosing efficiency	4.07	.90	High	4.18	.70	High	
4	Data searching tool use	4.21	.96	High	4.28	.68	High	



5	Data sources reliability checking	4.09	.89	High	4.07	.72	High
6	University digital media knowledge and access	4.19	.80	High	4.24	.70	High
7	Various digital media using for each study course	4.16	.79	High	4.06	.75	High
Use		4.16	.72	High	High	.57	High
8	Useful education digital media analysis, identification, and assessment	4.07	.79	High	4.03	.81	High
9	Digital media communication manners and responsibilities	4.08	.87	High	4.12	.82	High
10	Digital information laws knowledge and understand	4.05	.82	High	4.16	.78	High
11	Copies and rights code of conduct	4.07	.89	High	4.09	.87	High
12	Online security of data storage, data protection, and personal images	4.10	.84	High	4.17	.89	High
13	Software using knowledge and understand especially virus detection software for learning management	4.09	.85	High	4.16	.83	High
14	Proper teaching and early childhood education applications knowledge and understand	4.18	.79	High	4.18	.70	High
Une	derstand	4.09	.74	High	High	.70	High
15	Online media communication and cooperation	4.08	High	High	4.20	.66	High
16	Communication method searching and knowledge broadcasting via digital media	4.12	High	High	4.18	.67	High
17	Various digital media production for learning development by learning pictures providing called "photographic"	4.10	.80	High	4.12	.74	High
18	Interesting digital media presentations	4.13	.79	High	4.18	.70	High
19	Data and knowledge sharing networks via digital media	4.07	.86	High	4.10	.67	High
20	Reflected digital information providing to resolve and support social and community problems	4.16	.85	High	4.28	.69	High
21	Various websites or other channels seminar attendance	4.06	.89	High	4.16	.77	High
Cre	eate	4.10	.74	High	High	.60	High
22	Facebook	4.28	.89	High	4.28	.82	High
23	Line	4.31	.86	High	4.26	.83	High
24	Instagram	4.03	1.02	High	4.15	.86	High
25	Website Tutorials	4.02	1.03	High	3.94	.88	High
26	Youtube	4.36	.88	High	4.26	.88	High
27	Google Hangout	4.03	.94	High	4.01	.82	High
28	Google Classroom	4.22	.90	High	4.10	.84	High
29	Youtube Channel	4.17	.91	High	4.10	.89	High



30	BlackBoard	3.98	.85	High	3.87	.90	High
31	Video Conference	4.02	.93	High	4.00	0.82	High
32	Application	4.23	.75	High	4.00	.86	High
Entire Individual Digital Media Choosing		4.15	.69	High	4.09	.60	High
Ski	lls			_			-
Total		4.13	.63	High	4.13	.52	High

From table 3 found that Ramkhamhaeng University and Sukhothai Thammathirat Open University students' behaviors of digital literacy development were not different but their individual digital media choosing skills were different.

Table 3: Behaviors of digital literacy development comparison between Ramkhamhaeng University(RU) and Sukhothai Thammathirat Open University (STOU) students table

Digital Litanger	RU		STOU		4	
Digital Literacy	Mean	S.D.	Mean	S.D.	- ι	sig.
Use	3.98	0.56	3.94	0.54	.543	.588
Understand	4.05	0.57	3.94	0.64	1.277	.203
Create)	3.98	0.65	3.89	0.63	1.022	.308
Individual digital media skills					2 (74*	000
choosing	4.13	0.56	3.91	0.66	2.074*	.008
Total	4.05	0.46	3.92	0.53	1.867	.063

*Statistically significant at .05 level

From table 4 found that Ramkhamhaeng University and Sukhothai Thammathirat Open University students' needs of digital literacy development were not different.

Table 4: Needs of digital literacy development comparison between Ramkhamhaeng University (RU) and Sukhothai Thammathirat Open University (STOU) students table

	RU		STOU			
Digital Literacy	Mean	S.D.	Mean	S.D.	- ι	sig.
Use	4.16	0.72	4.17	0.57	218	.828
Understand	4.09	0.74	4.13	0.69	356	.722
Create	4.10	0.74	4.18	0.59	769	.443
Individual digital media skills choosing	4.15	0.69	4.09	0.60	.767	.444
Total	4.13	0.63	4.13	0.52	060	.952

Discussion

After studied behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University from Ramkhamhaeng University and Sukhothai Thammathirat Open University and could discuss as following details;

1. Students' digital literacy development behaviors from both

universities were different since most students were in Digital Native or Digital Citizens ages and 10-29 yearold. This population group was familiar with digital technology, computers, digital devices, and internet at any rate they often spend their time on internet and always being Actives so we call this group as "Always On".



This group always connects on social media networks and use communication devices to find, search, record, and do any activities or we can inform that they do not have to write down anything on papers, always read through E-Book, and usually connect people through social media like Facebook, Google Hangout, and LINE according to Nittaya Wongyai (1974), said that "To support, develop and educate Digital Native Group to live in world peacefully with high awareness in order to balance society with immediate globalization changes so Digital Native Population should know how to adapt digital media for themselves or common interests. Moreover students from both universities have to attend self-study system so they need to be disciplined so their education achievement perspective was so obvious". According to Knowles, 1975:18; self-study is the process that the learners have to study, diagnose their study needs, set up their objectives, and transfer instruction media by themselves. In addition they need to choose proper learning plan strategies and assess their own study records with or without the others cooperation or supports. However, learners are able to be better than the others since they have obvious goals and motivation to study and adapt this interest for the further self-development, freedom-study, and more self-responsibility. Furthermore, this system could develop the learners to adapt themselves with new education system so they shall be able to live in developing society therefore, self-study is considered as A Lifelong Process, (Knowles. 1975: 14 - 15) that conforms to digital literacy.

2. Students' digital literacy development needs from both universities were not different and average study records from each aspect found that students' digital literacy development needs were in high level. The most digital literacy development need aspect was media development choosing and they needed to develop Youtube and Facebook. These media are needed for early childhood education since they would be presented as songs, tales, or any other instruction media which already broadcasted on Youtube including they are comfortable to access from smart phones as well as students from both universities need to develop their same aspects of digital literacy as follows; Use: 1) technology, computer, and digital media adapted with various education approaches, 2) data searching tools using, and 3) universities digital media knowledge and access according to National Science and Technology Development Agency (2015); the main digital literacy development is lifetime learning which is the important skill for digital literacy and might be different depends on the learners' needs and situations and might cover from basic perception, training, to more complex application. In addition, digital literacy is not only technology awareness but also to cover any ethical and social issues as well as to reflect work, learning, relaxation, and daily living. Besides, it is advocated by the findings from Wawta Techataweewan, et al.(2016)'s study showing that the students' mean scores of the cognitive domain were at the high level. In contrast, Invention indicator and Presentation indicator were at the average level. In terms of Invention from technology and digital technology was required to use higher degrees of knowledge and skills as well as the uses of techniques, approaches, and designs in presentations in order to attract audience. Consequently, it is important to use online media in presentation properly, especially the multimedia that will rather boost students' interests and generate new knowledge than solely present through words or passages. Hence, students were required to have more knowledge and to apply it to create portfolio and present them efficiently.

Conclusion and Recommendations

From the study and comparison of behaviors and needs of digital literacy development of early childhood education candidate teachers in Thailand Open University through different study approaches were not different both digital literacy development behaviors and needs since most students were in Digital Native or Digital Citizens and 10-29 year-old. Moreover, students from both universities need to develop digital media skill and use so these issues would be the further education development model for universities and early childhood education program. In the meantime after studied found that early childhood education program and other education program students are able to conduct digital literacy researches and development activities.

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Re-establishing Backyard Gardening (ResBack): Challenges, Outcomes, Impacts and Plans

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ABSTRACT

This study presents the challenges with corresponding actions taken, outcomes and impact of "Bakuran Mo, Tataniman Ko" (literally translated as "I will Plant in Your Backyard). This is a project in 3Is (Inquiry, Investigation and Immersion) subject taken by grade 12 Agri Crops students by second semester of the academic year 2018-2019 (November to March). This was conceptualized due to the lack of time, space, skills, and training in establishing a backyard garden among the selected residents of Indang, Cavite (Castillo, H., et.al, 2018). This study is anchored on IE-TRUE concept which stands for innovation, extension, training, research, utilization, and entrepreneurship. In this study, 35 grade 12 Agri Crops students were grouped into eleven (11) according to their respective barangays with interested clients to have backyard vegetable garden. This is a descriptive quantitative and directive qualitative study that used validated monitoring sheets and evaluation forms with guide questions. The study revealed that the students faced challenges such as lack of seeds and quality tools; external factors like inclement weather condition, pest attack and animal intrusion. These problems were practically resolved through agriculture experts' technical assistance and students' resourcefulness. Further, the total expenditures for the plot preparation were eight hundred thirty-five pesos (Php 835.00). Likewise, the harvested crops within 1 to 2 months were pechay, mustard, eggplant, string beans, Baguio beans, lady's finger, tomatoes and bitter gourd amounting to Php 3,820.00 harvest cost of the 11 groups. From this production, Php 2,740.00 worth of crops was from the sales, Php 700.00 was shared (to the neighbors which is a common practice in the Filipino culture), and Php 380.00 was consumed. Consequently, the students acknowledged becoming more empowered while earning an income. Also, apparent organic food source, aesthetic and therapeutic effects contributed to clients' economic gain and health. Both the students and clients strongly suggested the continuation of this garden-making project with the provision of essential tools. This study proposes an agri-fair, laboratory cooperative for Agri Crops students and establishment of an arcade in the local market to sell their yields. This also recommends intensifying partnerships with government and non-government linkages; changing agriculture's image through ICT and social media; aligning the interests, perspectives and opportunities appealing to the young aspiring agriculturists.

Keywords: Agriculture Advocacy, Backyard Gardening, Young Agriculturists, Lumampong National High School-Indang Annex, Cavite





Introduction

The Municipality of Indang is known as *Bayan ng Agri-turismo* (Town of Agri-Tourism) which devotes 80% of its land area to agriculture and eco-tourism (http://indang-cavite.ph/). In response to this vision and policy, a research on *Promoting Backyard Gardening: Basis for Bakuran Mo, Tataniman Ko Project* was conducted by Agri Crops 11 students of Lumampong National High School-Indang Annex, Indang, Cavite (LNHS-SHS) in February 2018. Findings of this study revealed that the lack of time, skills and space are the main reasons for failure in utilizing small vacant lots for backyard gardening (Castillo, H., Mojica, K. A., Mendoza, T.L., Palloc, C., Panganiban, J. A. & Vidallon, R., 2018). Apparently, on a greater perspective, it can be observed that the popularity of ornamental plants surrounding almost households either in front or backyard and even flowering plants indoors overpowers the existence of a food source garden.

In this generation where farming is the least preferred activity for the youth and the more challenging effort is engaged in agriculture. It is indeed perplexing to conceptualize rewarding and nurturing activities that are beyond grades and academics. They are perceived to be playing a great role in the continuous growth of agriculture sector in the Philippines and are considered that they should be replacing the aging farmers, nowadays. Senator Cynthia Villar (2015) challenged them to "be agriculturally aware and take charge," to save our economy.

In response to this exigency, Lumampong National High School-Senior High School, Indang-Annex, Indang, Cavite offers Agri Crops under the Technical-Vocational and Livelihood (TVL) track. One of the subjects taken by these students, as part of their K to 12 curricula is 3Is (Inquiry, Investigation and Immersion). This is taken in grade 12 by the second term of the school year. In this setting, from November 2018 to March 2019. The subject requires a project that will have a meaningful impact among students and the community. Thus, an immersion tagged as "*Bakuran Mo, Tataniman Ko*" (literally translated as I will Plant in Your Backyard) was conceptualized. Its idea is capsulized in *ResBack through IE-TRUE: Re-establishing Backyard Gardening through Innovation, Extension, Training, Research, Utilization, and Entrepreneurship.*

The *innovation* or novelty of this project centers on the advancement of creative, eco-centered, and alternative way of learning and introducing a long-term immersion and extension program for the Agri Crops' 3Is subject; sustainable source of food for the clients and other residents, community and feeding program beneficiaries within the area. Also, the *extension* is initially set that the program is a community service of the school similar to what other huge companies call it as corporate social responsibility (CSR). Further, the *training* part is manifested on the students' interactions with clients, student-farmers, consultants, evaluators, subject teacher, school administrators, program partners and other experts partaking in this project. Their vigorous instruction and dynamic sharing of ideas, insights, strategies and expertise are carried out. The collaboration gives each of them opportunities and meaningful experiences advancing education outside the actual classroom setting.

Consequently, this project may spring *research* topics for further explorations resulting to relevant and responsive policies and programs. Moreover, this project intends the productive *utilization* of "time, talents and treasures" of students, faculty, school administrators and other people involved in this project. Utilization also pertains to the application of the concepts and theories learned by students from their field and integrating other subject areas. Similarly, intensifying student's creativity and resourcefulness using recyclable materials in horticultural or gardening to minimize cost. More so, ICT utilization as Young Professionals for Agricultural Development ("Five ways of engaging the youth in agriculture," 2014), affirmed that "seizing 'the youth's affinity for using ICT, their capacity to innovate and their propensity for taking higher entrepreneurial risks' in engaging them in agriculture. Finally, *entrepreneurship* is also one of the opportunities that the students may gain from the sales of the harvested crops.



This study answered the following focused questions:

- 1. What were the challenges encountered with the corresponding actions taken by the grade 12 Agri Crops students in re-establishing backyard gardening ("*Bakuran Mo, Tataniman Ko*") project?
- 2. What are the outcomes of the Bakuran Mo, Tataniman Ko project in terms of:
 - a. Department of Agriculture's evaluation of the vegetable gardens;
 - b. planted crops;
 - c. expenditures; and
 - d. harvest cost?
- 3. What are the impacts of the established vegetable gardens to the students, clients and school?
- 4. What are the plans of the proponents based from the results, suggestions and recommendations of the students and clients to further expand this innovative project?

Methodology

Research Design. This study employed descriptive quantitative and directive qualitative research. The quantitative part was focused on determining the common crops planted, expenses incurred and the harvest cost. On the other hand, the qualitative portion of the study was the use of evaluation form where the students indicated the challenges encountered, outcomes, and impacts of the *Bakuran Mo, Tataniman Ko* project. Both the students were also interviewed regarding their suggestions and recommendations about the project. Further, based from the results and findings, the plans of the proponents were also identified which makes this research a directive in nature.

Instruments. The study utilized a validated monitoring sheet containing the students' sex, age, monthly family income and their parents' occupation. In the same monitoring form, problems encountered with the corresponding actions taken by the Agri Crops students as well as their suggestions were also included. Observations and recommendations accomplished by the staff of Department of Agriculture were also included. Also, an evaluation sheet containing the clients' demographic profile, preferred planted crops, expenditures and harvest cost and their feedbacks pertaining to the impact and recommendations were indicated.

Participants. There were 35 grade 12 Agri Crops students (19 male, 16 female) whose age range from 17 to 20 at the time the project was completed. They come from a family with an average of ten thousand pesos (Php 10,000.00) monthly income. Majority of their mothers' occupation are basically housekeepers, fruits and vegetable vendors while some are store owners and the remaining few are farm caretaker, direct seller of beauty products, hairstylist, resorts worker, Math teacher, babysitter and Overseas Filipino Worker (OFW). In addition, many of their fathers are farmers, farm laborers, either tricycle or jeepney drivers. However, few are OFWs and with each one as household helper, barber, construction worker and carpenter.

These students established vegetable gardens for their eleven (11) clients in their respective barangays in Indang, Cavite such as Agus-os, Alulod, Banaba Lejos, Calumpang Cerca, Calumpang Lejos, Kayquit 2 and Tambong Balagbag. Out of 11, six (6) of them are females and five (5) are males. These female clients are 2 housewives, teacher, store owner, hairstylist and farm caretaker and whose age range from 41 to 54. Conversely, the male clients are barangay public servant, government employee, painter, farm laborer and entrepreneur. They are from 40 to 61 years old.

Data Gathering Procedure. This study has three (3) phases: pre-immersion, immersion proper and postimmersion. The pre-immersion stage which started on the first week of November 2018 includes the conduct of several meetings, orientation on the supporting policies of the Department of Education (DepEd); coordination with the School Principal, Municipal Mayor, Barangay Chairpesons, Department of Agriculture (DA)-Indang,



parents and prospect clients. Ultimately, they were formally endorsed to their chosen clients in their respective barangays. In the immersion proper, the students inspected the site, presented lay out of their proposed garden to their clients and discussed with them some important tips, strategies and necessary technicalities of the project. They eventually, established backyard vegetable gardens and performed other related tasks required of and suggested to them by the subject teacher, school administrators and other concerned officials involved in this activity.

On February 6, 2019, the DA staff visited the actual garden and evaluated the output and extended technical assistance to the students and the clients. A post-conference was also held afterwards. Finally, the post-immersion was undertaken through evaluation of the output of the grade 12 Agri Crops students and feedbacks from the clients. Both also specified their suggestions and recommendations.

Data Analysis. Using monitoring forms, challenges encountered with corresponding actions were listed. Moreover, observations and recommendations accomplished by the DA staff were noted. In the same monitoring form, students' suggestions were also included. Likewise, an evaluation sheet was used in obtaining feedbacks pertaining to the preferred crops planted, type and size of the garden (in meters), expenditures, harvest cost, impact of the project to them and their recommendations to further improve this project were also enumerated. Students and clients' responses were consolidated and analyzed with common answers. Finally, the plans of the proponents based from the results and findings were also identified.

Below are some photos on the pre-immersion, immersion proper, post-immersion activities and other accomplished related tasks.



Plot making and preparation





Other students' outputs from plot making, planting, monitoring, harvesting and selling.



Results and Discussions

Challenges Encountered by the Grade 12 Agri Crops Students and Corresponding

On January 28, 2019, using the monitoring sheet, the grouped students reported the challenges they encountered while undertaking the *Bakuran Mo*, *Tataniman Ko* project. Similarly, they conveyed the corresponding actions in resolving these circumstances given the available resources they have.

Table 1. Challenges encountered by grade 12 Agri Crops students and their corresponding actions

No.	Problems encountered	Actions taken
1	lack of seeds causing delay to planting	clients bought seeds; Agri Crops students and subject teacher solicited some seeds from friends and neighbors
2	lack of quality tools used by students	repaired and improvised tools; borrowed from neighbors; used available resources in their homes
3	difficulty in cutting tall bamboos;	sought assistance from neighbors
	many thick weeds on the site	
4	trash/ garbage around the area	removed the trash/ garbage and eventually cleaned the area
5	too compact soil/ land	watered and cultivated the soil
6	children running and playing on the plot	repeated and fixed the plot
7	pests attack and animal intrusion	replanted and applied pesticides
8	lack of bamboo (for fencing) and water supply	fetched water from nearby household and supplied a barrel of water near the garden
9	inclement weather condition that caused influenza among the students and caused delay of the planting activities	students rested and the clients assisted them
10	seedlings were washed out due to non-stop heavy rain in November. December and early January	replanted seeds
11	some plants decayed and withered	saved the healthy grown plants/ vegetables
12	conflict of time for gardening and schedule of Work	managed their schedules and requested
	Immersion or on-the-job training as both were taken in the same semester	assistance from the clients or family members with instructions to perform other
13	a client reported 2 indolent students while on the field	related tasks students were endorsed to a new client with
		proper motivation

Table 1 presents the challenges encountered by the grade 12 Agri Crops students. It can be noted that the major problem encountered was delay of planting due to the lack of seeds. This problem can be attributed to the fact that when the project started on November 15, 2018, the year was about to end in which seeds are no longer available at the DA that time. According to the said office, the seeds were already distributed earlier that year. In addressing this problem, some clients bought their preferred seeds. Also, the Agri Crops students and subject teacher solicited some seeds from friends and neighbors. Another problem that contributed to the delay of planting was the lack of quality tools necessary for farming and gardening. In solving these problems, the students manifested their creativity by improvising some tools. They also showed initiative by repairing them and borrowing from their neighbors. In addition, surrounding circumstances such as difficulty in cutting tall bamboos and many thick weeds on the site, trash/ garbage around the area, too compact soil/ land, children running and playing on the plots, pests attack and animal intrusion and lack of bamboo (for fencing) and lack of water supply also added to the problem. Moreover, schedule for gardening (in 3Is subject) and Work Immersion or on-the-job training (OJT) as both subjects were taken in the same semester was also in conflict.



However, minor problem was handled when a client reported that two (2) students were indolent while on the field. It was found out that these students were actually compelled by circumstances to take agriculture course. Thus, disinterest in the activity was somewhat observed. Nonetheless, they were endorsed and accommodated by a new client with proper motivation. Despite all these problems, the students have shown commitment, inventiveness, resilience, persistence and high spirits to outdo the challenges.

Outcomes

Evaluation Results of the DA Staff. Apart from the challenges mentioned, the selected DA staff have evaluated the actual garden on February 6, 2019 and gave the following observations and recommendations: (1) The undertaking was properly coordinated with Barangay officials and clients; (2) Most areas and sites were creative and organized; (3) Provide insect repellants to avoid occurrence of pests; (4) Plant additional seeds; (5) Continue the interest and commitment in the project; (6) Provide documentation of the entire activities; and (7) Plant at an earlier time of the year following the respective crops appropriate for the season or month.

Planted Crops. The planted seeds in the garden were based on the preferences of the clients. Eventually, the planted crops were: pechay (*Brassica rapa*), mustard (*Brassica argyi*), string beans (*Vigna unguiculata*), lady's finger (*Abelmoschus esculentus*), eggplant (*Solanum melongena*), Baguio beans (*Phaseolus compessus* DC.), papaya (*Carica papaya*), tomatoes (*Solanum lycopersicum*), river spinach (*Ipomea aquatic*), radish (*Raphanus sativus Linn*), chili (*Capsicum frutescens*), and onions (*Alliun cepa*). These were the crops that can be harvested within a month or two and are timely for the academic term of the participating students in the conduct of this project. However, papaya, radish, onions, bell peppers, strawberry and insulin plant were additionally planted late February and early March 2019.

Expenditures in the Bakuran Mo, Tataniman Ko project from November 2018 to February 2019. Basically, there was a minimal cost in the preparation and completion of the urban and bio-intensive gardening for the clients.

Table 2. Expenditures in the Bakuran Mo, Tataniman Ko project						
No.	Units	Items	Amount per item in Philippine peso	Total Amount		
6	packs	seeds	Php 5.00	30.00		
1	piece	paint brush	15.00	15.00		
3	kilos	nails	60.00	60.00		
14	cans	paint	50.00	700.00		
1	meter	lumber wire	25.00			
Total				Php 835.00		

Table 2 presents the five (5) itemized cost for the expenses incurred in the preparation and completion of the vegetable gardens charged to the clients. The total expenditures of eight hundred thirty-five pesos (Php 835.00) merely include Php 5.00 per pack of the seeds, Php 15.00 paint brush, Php 60.00 for nails, Php 700.00 for the paints and Php 25.00 for the lumber wire. The amount implies those recyclable materials such as plastic bottles; improvised pots and other eco-friendly supplies were utilized for minimizing cost and showcasing artistic quality of the garden.

Harvest Cost as of March 2019. One of the highlights of this project was the harvesting period in March 2019. This is the part when students and clients could utilize their yields through sales, distribution and consumption.

Crops	Harvest	Amount in	Amount Utilized (in Php)		
	(in kilos)	Philippine	Sold	Shared	
		peso (Php)	Consumed		
		_ ⊓ ⁵⁴¹			
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1. pechay	29.2	100.00	1,009.00	700.00	320.00
2. mustard (mustasa)	1	90.00	90.00		
3. eggplant (<i>talong</i>)	6	40.00	240.00		
4. string beans (sitaw)	8	30.00	240.00		
5. Baguio beans	1	90.00	90.00		
6. lady's finger (okra)	3	30.00	90.00		
7. tomatoes (kamatis)	3	30.00	90.00		
8. bitter gourd	1	60.00			60.00
(ampalaya)			2,740.00	700.00	380.00
Total: Php 3,820.00					

Table 3 shows the crops production, harvest cost (in Philippine peso) and consumption either selling or sharing. The harvested crops were 29.2 kilos pechay, 1 kilo mustard (*mustasa*), 6 kilos eggplant (*talong*), 8 kilos string beans (*sitaw*), 1 kilo Baguio beans, 3 kilos lady's finger (*okra*), 3 kilos tomatoes (*kamatis*) and 1 kilo bitter gourd (*ampalaya*). It can be noticed that there was no harvest yet of papaya, radish, onions, bell peppers, strawberry and insulin plant at the end of the academic term as these plants or crops were added after the garden evaluation first week of February 2019. These entail more than two (2) months to grow and harvest which is implicitly beyond the grading period.

A total of three thousand eight hundred twenty pesos (Php 3,820.00) was the harvest cost of the 11 groups. Php 2,740.00 worth of crops was sold, Php 700.00 was shared and Php 380.00 was consumed. It could be observed that the harvest cost seems small which can be attributed to the small space available for the backyard garden with the limited time for the academic term. However, this is somehow a good initiative to gradually expose students in entrepreneurship through re-establishing backyard gardening and eventually regain the glory of farming and agriculture in the coming years. It can be inferred that the harvest cost basically depends on the size of the urban and bio-intensive garden and the quality of the harvested crops.

Impact on the Students, Clients and School

An interview was conducted among the students and clients who expressed the impact of the *Bakuran Mo*, *Tataniman Ko* class project to them.

Impact on the Students. The students generally acknowledged that the project further enhanced their skills and knowledge in agriculture through vegetable garden-making for their clients. They also realized the values which were further imbued among them, particularly, in dealing with clients, discipline with time, value for work and labor, contributing to their community and reviving the appreciation and cultivation for the agricultural land. Also, since most of them come from an average and below earning families, the small income they earned supported their needs within the period of this project.

Impact on the Clients. The clients largely appreciated economic gain from the harvested crops and consumed by their families while some were sold and shared with their constituents or neighbors (which is a common sharing practice in Filipino culture). They were able to address the predominant economic strife, prevalent inflation and proliferating increase in the prices of the basic food commodities. The vegetable gardens made by the students were an appropriate organic food source readily available and sustainable in the premises of their homes. Further, they considered that vegetable gardens are vital contributions to their whole being brought by the artistic and therapeutic effects of the plants.

Impact on the School. Lumampong National High School, Indang Annex- Senior High School (LNHS-SHS) rediscovered a possible "out of the box" concept of learning among the Agri Crops students and innovative way of extending actual integrative training for agriculture students beyond the classroom. Also, through this project, DA organized 4H (Head, Heart, Hands and Health) Club in this institution in which students became members; some were elected officers and participated in their 4H BIDA (Bringing Innovation and Development through


Agriculture) Youth Camp held in March and April 2019. More significantly, the school and a State University had partnership through a Memorandum of Agreement vital to higher educational institutions' (HEIs) program aligned with K to 12 curriculum related to its immersion program for the incoming Agriculture students in their university.

Suggestions of the Students. Most of the students suggested the continuity of its implementation and should begin months before their work immersion or OJT. Instead of by group, project may be conducted individually for more independence on the part of the students. From the perspective of the students, group 10 emphasized, "Ang aming pong suggestion para ma-improve ang project na *Bakuran Mo, Tataniman Ko* ay una po, sana po hindi kasabay sa OJT ng Agri Crops para hindi po sobrang hassle sa students. Sana po first semester yung project ...kasi sobrang nahihirapan ang estudyante na i-balance yung oras. Pangalawa po, mas maganda pong individual ang project na 'to para mas sobrang mag improve ang bawat Agri Crops student at maranasan ang pagiging independent..." Group 2 also remarked, "Ang maisa-suggest po namin, eh sana po next year may maganap pa ulit na ganitong project para po sa mga susunod na estudyante na ma-improve pa po nila at mapalawak ang kanilang kaalaman sa agriculture kasi po malaki ang naitutulong ng ganitong proyekto sa mga kabataan at kabarangay."

Suggestions of the Clients. Generally, most of the clients firmly suggested the continuation of this project as it has valuable impact to the students and the economic gain for the constituents and their families, especially in the constant price increase of basic commodities. Moreover, providing more tools for the students is necessary for more productive garden-making projects similar to this. For instance, client 4 stated, "Ipagpatuloy ang ganitong proyektong pampaaralan dahil malaki ang tulong sa community at lalo sa amin na konti lang ang kita para sa pamilya, malaking katipiran lalo na ngayon pataas nang pataas ang presyo ng pangunahing bilihin...Idadagdag ko lamang po na sana magkaroon ng sapat na tools o mga kagamitan ang mga estudyante para mas mapadali at 'di rin sila mahirapan sa paggawa ng garden."

Plans of the Proponents and the School

The proponents convened on April 5, 2019 and resolved to further expand and promote this innovative school project as a continuous extension activity, opportunities for more relevant trainings, make follow-up researches, utilization of all possible available resources that could be maximized and engage students into agrientrepreneurial ventures, especially for the aspiring agriculture students. Specifically, based from the results, the proponents plan to (1) seek agricultural or garden tools donations from foundation institutions sharing this advocacy; (2) benchmark for the possible establishment of a laboratory cooperative for agriculture students; and (3) coordinate with local public market management to provide a space or a stall where students could sell their harvested crops; (4) promote the project's output through video clip to be shown on the wide LED TV in Indang town proper for advertisement and information dissemination; (5) propose an agri-fair showcasing the harvests of these agriculture students to encourage more patrons and entice young farmers; and (6) rename *Bakuran Mo, Tataniman Ko 3Is Project* to *YResBack through IE-TRUE* which stands for *Youth, Re-establishing Backyard Gardening through Innovation, Extension, Training, Research, Utilization and Entrepreneurship.*

Conclusion

The *Bakuran Mo, Tataniman Ko* is an initiative and a collective effort that the school, community and entire country at large could champion advocacy on agriculture among the youth. Apparently, the grade 12 Agri Crops students have high spirit for farming and gardening given the proper motivation, meaningful agri experiences and relevant exposure that heighten their zest. They were able to address both internal and external challenges that confronted them. The project was observably an avenue to have served clients in this garden-making activity. As a pilot project, it was also evident that it was accomplished not merely for a classroom requirement but as community service with enthusiasm, commitment and legacy before graduation from senior high school. Both the students and clients strongly recommended the continuity of this project with provision of necessary tools. This study recommends (1) strengthening partnerships with various government and private agencies; (2) uplifting the image of young farmers; (3) promoting agriculture among the youth through word of mouth



(sharing testimonies and pleasant stories about farming and gardening); (4) utilizing ICT and social media for information dissemination relevant to agriculture; and (5) other significant plans and projects may be further conceptualized.

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The Lived Experience of Communication Internship and Associated Implications to Curricular Preparations

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ABSTRACT

Internship is an active and transformative process of learning. In this process, the individual's experience is essential to understand and improve the pedagogical process and curricular design. This study aimed to describe the students' experience of communication internship and the associated implications to curricular preparations. A descriptive phenomenological method was used to explore the data from the seven volumes of weekly narratives and informal dialogues of the seven participants. Employing the seven-step process of data analysis of descriptive phenomenology, three themes emerged: the presence of struggle, rewarding experience, and psycho-social transformation, from the eight theme clusters of the seventy eight significant statements and formulated meanings. The composite of these themes reveals that communication internship is a learning process of struggles and rewards which meaningfully and holistically transform the learners. At the very core of this description is the fundamental structure of the phenomenon. Communication internship is persistence. Without persistence, communication internship cannot be what it is. Persistence is the driving force that propels the learning process. On the other hand, the struggle of the participants implied a lack of related learning experience and training on the expectations of mass media work. This study provides new insights into the concept of internship in an Asian context and provides the detailed description of the experience of the learning process.

Keywords: Communication Internship, Curricular Preparations, Struggles, Descriptive Phenomenology





Introduction

Communication internship connects the cognitive experience of the students to the processes of the actual work environment. This engagement into the actual work enables the students to strengthen their formation in terms of work values, work ethics, professionalism, and leadership. The Revised Guidelines for Student Internship Program of Philippines (SIPP) of the Commission on Higher Education (CHED) points out the importance of the internship program as a vehicle to complement learning from the academe with hands on experience in the field. Thus, SIPP defines internship as a time when students can apply what they have learned from the classroom to the actual work environment in either commercial, industrial, government, and non-government agencies (CHED-CMO 104 s. 2017). Many studies had already been conducted, whether qualitative or quantitative in nature, on the importance and impact of internship program to the student interns. All of these studies positively carve an image of internship as a process that creates a dynamic impact in the in the lives of the interns. For example, in a study conducted by Bush (2013), the young principal participants described internship as an active process of learning that can transform the learners. This description captures their life world as they emerged themselves into the daily routine of the real work. For Jamison and Clayton (2015), the experience is something that changes the participants' perception of administration as it prepared them to occupy the administrative position. Furthermore, the findings of the numerous studies reveal that the experience enhances the participants' learning process (Goins, 2015); propels students' willingness to work and encourages them to recommend the internship to other students (Chen, Hu, Wang, and Chen, 2011); creates advantage in the job market among the participants as well as it also enhances their personal skills (Parker, Kilgo, Sheets, and Pascarella, 2016); illustrates how the interns become satisfied with their internship because of the support of their supervisors (Yoo and Morris, 2015); trains the students for the job and the practice of professionalism (Ardanari, 2017); and makes them realize that their curricula reflect the actual practice and regard internship as something that is valuable in preparing students for future career (Ross and Elechi, 2006)).

These studies are relevant to the investigation of the experience of communication internship. Furthermore, these studies cited and reviewed are conducted in foreign countries and mostly are set in the context of a western experience. Comparing all of these studies together, they only capture the perceptions of the interns regarding the success of the entire process. However, there was no direct investigation in the implications of this experience to the curricular preparations. Though this study investigated the experience of communication internship, it did not stop on the emergent themes. Rather, this study proceeds to the investigation is significant to understand and explore the meaning of communication internship among the Filipino student interns and its associated implications to curricular preparations.

Statement of the Problem

This study aimed to explore the participants' experience of communication internship with the overarching question: What is the fundamental structure of communication internship? Specifically, this study aimed to answer the following questions: 1.) What is the participants' experience of communication internship? 2.) Does communication internship strengthen the curricular preparation? 3.) Does communication internship provide associated implications on curricular preparation?

Framework of the study

This study was anchored on the concept that in order to understand the lived experience of individuals with a phenomenon, there is a necessity to "reduce individual experiences with a phenomenon to a description of a universal essence" (Creswell, 2007, p. 58). Creswell emphasizes the significance of describing the totality of the experience of individuals who experienced the same phenomenon into its fundamental structure or essence. In this study, the individual's experience of the phenomenon of communication internship was explored and reduced to its universal essence. This serves as the epistemological foundation on the search for the description of the phenomenon.



These experience of every individuals is so rich and pregnant with meanings that are helpful in understanding one's performance in the internship and also useful in the assessment of some associated implications especially that which is related to the curricular preparations.

The individual's behavior towards the work and their assigned task are believed to be influenced by what they see from what people in the station are doing as Albert Bandura theorized. In his Social Learning Theory, Bandura (1977) asserts that the individuals are influenced by the environment that surrounds them. The environment where an intern works plays a big role in learning a certain behavior through learning by means of observation (cited in McLeod, 2016).

Methodology

Research design. This study employed the qualitative research design specifically phenomenology following the philosophical tradition of its proponent Edmund Husserl. Fochtman (2008), Lopez and Willis (2004), Wojnar & Swanson (2007) described Husserl as a German philosopher who became responsible for the prosper of phenomenology in the twentieth century especially during the first decade and aimed for the establishment of an approach that is rigorous and free from bias in order to arrive to a fundamental knowledge of the consciousness of human beings and their experience (as cited in Shosha, 2012). Phenomenology can be descriptive (Husserl) and interpretive or hermeneutic (Heidegger). Descriptive phenomenology aims at arriving to a true meaning of the experience through and in-depth engagement into reality (Laverty, 2003; Lopez & Willis, 2004 as cited in Shosha, 2012). In similar manner, descriptive phenomenology aims to arrive at the revelation of the "essential structure" of the phenomenon or features that "make it what it is" (Morrow, Rodriguez, & King, 2015). The assumption in the Husserlian phenomenology is to bracket or separate participants' description of the phenomenon to that of the researcher. Bracketing is the full description of the personal experiences of the researcher of the phenomenological tradition, Colazzi (1978) developed his own phenomenological method. This study employed this method as espoused by Colaizzi.

Participants. Seven participants were purposefully chosen through a purposive sampling following these criteria: 1) must be enrolled in a communication internship course; 2) must be a fourth year regular BA communication students; 3) must be an intern in either a commercial or development/religious television network. Three of the participants were interns of a national commercial television networks while four were interns of a development/religious network with a national coverage. The interns from the commercial television network were named in this study as Samuel, Era, Shine and the interns from the development/religious television network were referred here as Maria, Jezza, Almera, Prima. The ages of the participants were ranging from 20 to 24 years old. They all came from the province of Misamis Oriental in the island of Mindanao.

Data analysis procedure. In this study, the process of the phenomenological analysis followed the method proposed by the psychologist Paul Francis Colaizzi (1978). He proposed a seven step analytic process of the data in order to reach the fundamental structure of the experience. The following steps show the process of analysis using Colaizzi's method (Shosha, 2010; Morrow, Rodriguez, & King, 2015). Before starting with the analytical process, the researcher needs to describe his personal experiences regarding the phenomenon (Creswell, 2007). This is called bracketing. Bracketing allows the researcher to focus on the participants' experience and not on his own experience. Step 1 encourages the researcher read, read, and re-read to familiarize the transcript or narratives. In other words, the researchers have to immerse themselves into the accounts of the participants. Seven volumes of narratives were read and re-read by the research to be familiar with the experience. Step 2 brings the researcher closer to the accounts of the participants by identifying the significant statements. Significant statements must be relevant to the phenomenon. Statements must not be repetitive and must overlap with other statements (Creswell, 2007). In this stage, 78 significant statements were identified. Step 3 is the formulation of meanings from the significant statements. The meanings bear relevance to the phenomenon and it must be carefully considered from the significant statements. Step 4 is looking for categories, cluster of themes, and emergent themes. In this stage, the researcher categorized the meanings that are common across all accounts, into clusters. The seventy eight formulated meaning were grouped into eight theme clusters. The eight theme clusters were further grouped into three emergent themes. Step 5 is the development of the



exhaustive description. At this stage, the three emergent themes were defined into an exhaustive description. This is a full and inclusive description of the phenomenon of communication internship. Step 6 is the reduction of the description or the condensation of the exhaustive description in order to reveal the fundamental structure or the essential structure of communication internship. Step 7 is the last of the process where the fundamental structure was returned to the participants for validation of the experience. Participants were gathered in an informal dialogue to talk about the fundamental structure including that of the associated implications. Feedback is very important during this stage to help the researcher validate the findings.

Bracketing of the researcher's personal experience. The researcher had experienced internship during his college years way back more than two decades ago. His internship was done in a government agency and in a local radio station. As far as the researcher can remember, the only difficulty that he had experienced during his internship was the distance from the radio station to the place where he was staying. It was a difficult for him to travel especially that he had to report very early in the morning because he was assigned as a market field reporter. He was also assigned to translate news from English to Cebuano every evening for the morning news. The internship made him develop his skills in newswriting and field reporting. The internship was also an opportunity for him to learn from people in the media industry. On the other hand, he was the coordinator for communication internship. Because of this, the interns were known to him because they have a regular meeting with him. During the meetings, there were casual conversations and even dialogues with the interns.

Validation strategies of the study. A number of criteria were proposed to establish validity in qualitative studies. For example, Whittemore, Chase, and Mandle in 2001 (as cited in Creswell, 2007) organized primary and secondary validation criteria for qualitative studies. The primary criteria include credibility, authenticity, criticality, and integrity while the secondary criteria include explicitness, vividness, creativity, thoroughness, congruence, and sensitivity. Creswell looked at these criteria as a movement toward the "interpretive lens of qualitative research" (Creswell, 2007, p. 206). With the plethora of perspectives to validate qualitative studies, Creswell (2007) offered his own version as a summary of these perspectives. He used the term validation instead of trustworthiness and authenticity because he wanted to emphasize on the process of validation. Because this is a process that involves various strategies, he used the term validation strategies. Eight strategies were chosen to represent the strategies frequently used by qualitative researchers (Creswell and Miller, 2000 as cited in Creswell, 2007). This study followed the strategies mentioned by Creswell especially the use of multiple and different sources, clarifying researcher bias, member checking or the views of the participants whether the interpretations and findings were true and credible, and the use of external audits where the process and accuracy of the accounts were assessed.

Results

The narratives of communication interns revealed three emergent themes from the seven theme clusters of the formulated meanings that describe the participants' experience of communication internship. These themes include the presence of struggles such as apprehensions, and strenuous and challenging tasks; the rewarding experience such as the inspiring and opportunity-filled work and fun-filled and satisfying experience; and the psychosocial transformation such as building of character and attitude, personal growth, sense of opportunity, and responsibility and discipline. These themes bear implications to the academic as well as the non-academic preparations of the participants. These seven theme clusters were grouped into three emergent themes: presence of struggles, rewarding experience, and psycho-social transformation.

Presence of struggles. This first emergent theme revealed the difficulties of the participants as they immersed themselves into the reality of the workplace and the work environment in the field of mass media. Emotional and even physical struggles defined the experience as described under the theme clusters of apprehension and strenuous and challenging experience.

Apprehension as disclosed in the narratives of the participants includes the feeling of scare, nervousness, and anxiety. According to the participants, there was a scary feeling during the times that they conducted the field interviews. Maria was scared during the time that they were brought to Marawi City, a city in Mindanao inhabited by mostly Maranaos, after the Marawi siege to conduct interviews among the evacuees. Maria said:



"I was scared...especially the time that I interviewed a Maranao" (Narrative 2, p. 6, lines 6-7). On the other hand, the participants also felt nervous and anxious with the thought that they might not be able to perform the tasks given to them or they might commit mistakes or they might not be able to handle well the studio equipment. For example, Jezza expressed: "I was nervous when they appointed me at the said work because I have no idea of what am I going to do" (Narrative 3, p. 1, lines 6-7). Maria said: "When I was the one holding the camera for the center shot, I was so nervous because the crew in-charge of the control room scolded me because I was so fast in zooming in and out" (Narrative 1, p. 4, lines 3-4). Prima had also similar feeling when she was assigned as floor director of a live TV segment. Prima said: "I became floor director several times, honestly, during the first time that I directed, I was really nervous because I might commit mistakes during the live take" (Narrative 4, p. 3, lines 5-7). Prima continued: "...the most nerve-wracking part of our...experience was during the handling of the cameras. I felt so tensed, I was really nervous, there are thousands of people around us and the event was broadcast live" (Narrative 4, p. 5, lines 15-17). The narratives of the participants described some of the struggles that they had experience while performing their tasks in their assigned Host Training Establishments (HTEs).

Moreover, the participants in this study also described communication internship as strenuous and challenging. It was strenuous and challenging because of the presence of difficulty and pressures of the work. For example, when Almera was assigned as floor director, she found it really difficult to maintain the eye contact between the host and assigned camera. On her part she needed to always remind the host to look at which camera the host should supposed to look and not to look at other cameras. Almera said: "It was difficult for the host to keep their eye contact to the camera...I failed a few times..." (Narrative 7, p.3, lines 5-7). On another occasion, Almera was shaking during her first time to handle the camera. Almera said: "Since it was our first week as interns, it gave me a lot of pressures...my hands became sweaty and I was shaking a bit..." (Narrative 7, p.3, lines 7-10). Maria also felt similar pressure and exhaustion during a field production. Maria said: "I feel the pressure this time because it's raining and video recording is still going on. We continued the production even rain or shine" (Narrative 1, p.5, lines 14-15). Maria continued: "I already knew that there was no time to rest in getting information from the people who are involved in the issue" (Narrative 1, p. 5, lines 2-3). Jezza also shared similar experience. She said: "I felt so exhausted that time because every scene has different angles" (Narrative 3, p.4, lines 2-3). But the challenge of communication internship did not end in situations like these. There was even a point that the participant was almost to withdraw from the internship and guit because of what she had experienced. Almera said: "There were lots of ups and downs that made me want to guit since I felt like I couldn't do anything right ... " (Narrative 7, p.4, lines 16-17). Another challenge that the participants faced was the long hours of standing and being reprimanded by the crew whenever they had committed mistakes. Jezza said: "Standing for hours is tiring and how much more operating the big cameras and being scolded" (Narrative 3, p.4, lines 2-3).

Rewarding experience. This second emergent theme is quite a contrast with that of the first emergent theme. The participants recognized that communication internship has also constructive sides. These constructive sides of communication internship are captured in the theme clusters that include inspiring and opportunity-filled and personally fulfilling and satisfying.

The theme cluster: inspiring and opportunity-filled includes the participants' exposure to television practice, opportunity to explore the studio and its equipment, seeing their faces in the TV screen, the dedication of the TV personnel, and the privilege to see the actual TV production.

In their narratives, the participants expressed that the fact that the station had allowed them to explore and to use the different equipment and facilities of the station was already an immense opportunity and privilege for them as interns. In fact, in her narrative, Shine described: "I had a chance to observe how they conducted interviews. The following day, we went to ... to shoot for the ... plug. There I had the chance to set-up the lights and camera" (Narrative 6, p.3, lines 2-5). Shine added: "We went to ... and I experienced handling the camera and the lapel" (Narrative 6, p.6, lines 9-10). In her narrative, Prima said: During our stay here at..., we are exposed to the studio. We also learned a lot of things such as how to operate a camera, how to safely clean the camera, and how to install it. I was really thankful that I was able to use and manipulate them hands-on" (Narrative 4, p.3, lines 1-3). On the other hand, the participants did not only reveal how they appreciated the opportunities that were given them, they also expressed how they were inspired by the dedication of the TV



crew. Prima said: I thank the patience, kindness, and ...understanding that were given to us by the staff...They are so welcoming and friendly. We made things possible because of them" (Narative 4, p.3, lines 15-16). Prima continued: "My experience was really fruitful. It inspired and made me praise the work of the media people who dedicate themselves in serving the people...be in the most dangerous location" (Narative 4, p.12, lines 8-10).

Moreover, the narratives also disclosed that the participants find the internship as fulfilling and satisfying because of the recognition of their works by their supervisors, utilization of their works in the actual production, and their interaction with different people. For example, Samuel, the only man among the seven participants, narrated that he was extremely happy when his work was used in the airing of the news. He said that it really boosted his personal confidence and it made him proud of himself that he was able to have this accomplishment. Samuel said: "I wrote news and edited a video. Then, it was aired. I was so proud of myself during that time because I made an achievement. It made me feels like I am already a mass media practitioner" (Narrative 2, p.2, lines 10-12). Fulfillment and satisfaction with one's work can also be felt even with the simple interaction with people. Jezza experienced it during their filled work. She said: "I was really happy because I was able to interact with people and was given a chance to be seen on TV" (Narrative 3, p.4, lines 16-19).

Psycho-social transformation. This third emergent theme described communication internship as a catalyst for inner and outer change among the participants because it enabled them to build their character and attitude toward work, allowed them to grow personally, instilled in them the sense of priority, and made them become responsible and disciplined.

Participants acknowledged that their internship had helped them build their character and attitude. They have fears but positively, it pushed them to exert more effort in their daily task and facilitated them to do their best. Samuel said: "Mr. ..., the department head, told me to watch a video coming from the Facebook post about snatching and to make a SILSOT script about it. I was afraid when he gave the task to me, but I give my best to write something from it..." (N2, page 3, lines 23-28). Moreover, the participants experienced that as they stayed longer in the internship, they became tough to face the rigors of the work in the mass media. Maria said: "I need to be tough and strong to perform the given task then to observe first before doing the task" (Narrative 1, p.15, lines 11-13). Maria added: "I experienced a lot of things in my OJT such as becoming independent and responsible to perform the task that my supervisor gave to me and also to mingle with other people" (Narrative 1, p.9, lines 15-17). According to the participants' narratives, the internship enabled them to change their attitudes toward work. However, it is not only the attitude that was change but it also includes their character as well because according to Samuel, it really matters. Samuel said: "Your character really matters in the workplace, you should know how to listen to instructions and you should know how to work with all your heart and with dedication and passion" (Narrative 2, p.4, lines 9-11).

Participants had also recognized their personal growth. Communication internship instilled in the participants' mind the concern for other people. According to the participants, the work in the mass media should be done with the audience in mind. Because of this, the participants learned to grow from a self-centered way of looking at work to an audience-centered way. Samuel said: "I learned that in the mass media, you should put it mind that you are not writing for yourself but you are writing it for other people" (Narrative 2, p.3, lines 29-31). This personal growth also includes the way they felt toward other people. They learned to empathize especially at times that they conducted interviews. Jezza had this experience when she interviewed the evacuees in Marawi City. Jezza said: "My heart was touched when I heard the story of the people in Marawi City" (Narrative 3, p.11, lines 12-13). Similar story was shared by Shine when they were there in Marawi City. Shine said: We took a video and conducted an interview" (Narrative 1, p.6, lines 3-5). The internship also molded the interns holistically. Prima said: "It molded me as a person…physically, mentally, emotionally, and spiritually" (Narrative 4, p.6, lines 3-4).

Communication internship trained the participants to develop a sense of priority. This sense of priority involved constant practice, time, and focus. Practice according to the participants is necessary in the work of a mass media practitioner. Time is also very important especially inside the studio and in reporting in the station. The



interns also saw the need to stay focused and alert in the work. Era, Maria, and Shine narrated how they valued priorities in their day to day activity in the station or even in the fieldwork. Era said: "I learned to have focus in everything I do and to have presence of mind on what I am doing" (Narrative 5, p.6, lines 8-10). Maria said: "I discovered that as a mass media practitioner my priorities are the people who will who will read or watch the news I write" (Narrative 1, p.10, lines 5-6). Era said: "I was always positive and I think about deadlines for my script…" (Narrative 5, p.10, lines 3-5). Shine said: "I learned the importance of time because time is precious in the mass media" (Narrative 6, p.2, lines 7-8).

Communication internship molded the participants to become responsible and disciplined. To become responsible and disciplined means to work quickly with less supervision, to listen to instructions, and to value the faith and beliefs and others. The participants learned to do the work not because it is for men or for women but because they need to do it regardless whether they are men or women. They know that it was their responsibility to do it. For example, Maria had to carry the big cameras after the production because she thought that it was her responsibility to do it. Maria said: "we are girls but we were the ones who carried the tripod, the cameras…" (Narrative 1, p.5, lines 12-13). It is not only responsibility that is need in the mass media work but also discipline. Discipline involved responsibility in the assigned task. Sean said: "You must work with minimum supervision and also you should interact with each other in the company" (N2, page 4, lines 3-5).

Exhaustive description of communication internship. The composite of emergent themes: presence of struggles, rewarding experience, and psycho-social transformation reveals the whole structure of communication internship. Communication internship is a transformative process of learning where learners has to go through an initiation to painful but rewarding learning experience that enables them to grow holistically. While it is true that there were emotional and physical struggles in the forms of anxiety, nervousness, being confused, shaking of hands and body, and sweating, communication internship rewards them with abundant opportunities such as modeling from the dedication of the personnel to their work, exploring the broadcast resources of the station, and seeing and being part of the actual television production. Living with the values that they have imbibed, the participants' way of dealing with their emotions, their perceptions, their priorities, their way of looking at the importance of others, of disciplining themselves in the performance of their duties and responsibilities have been transformed.

Fundamental structure of communication internship. The fundamental structure (Colaizzi, 1978) or the "essence" (Creswell, 2007) of the phenomenon is the second to the last step of the phenomenological method of Colaizzi before finally going to the validation of the findings and descriptions with the participants. The narratives yield three emergent themes such as the presence of struggles, rewarding experience, and psychosocial transformation. With these themes, the fundamental structure of communication internship is persistence. Can communication internship experience be a communication internship without persistence? The answer is no. Persistence is what makes communication internship what it is. Persistence became springboards for strength and toughness and a way to better appreciate and to humbly rejoice in rewarding and simple accomplishments. Through persistence, communication internship positively brought the transformation in the individual's character and attitude and made them grow personally into a person with a sense of priority, responsibility, and discipline.

Implications to curricular and extra-curricular preparations. While other phenomenological studies end up with the production of the fundamental structure in their analysis, this study proceed to explore the first of the three themes: the presence of struggles and its implications to the curricular and extra-curricular preparations of the participants. This technique has been patterned after the study of Morrow, Rodriguez, and King (2015). They opted go beyond the fundamental structure so that they can explore and focus in one of the main themes of their study.

Communication internship is not an isolated experience because just like any other first time experience, it will always involve adjustments and familiarization with the work, the work environment, and the people whom you worked with. This is the structure of the struggle of the individual participants as they tried to adapt to this new and unfamiliar environment such that in the classroom and in the laboratory. With these struggles are the feelings of nervousness, anxiety, confusion and bodily manifestations of fears. The struggles depict the picture



of emotional and physical difficulties. The struggles are real and it emerged from their first-hand experience of interviews, of handling the actual television cameras, their negative thoughts as to the feedback from their supervisors and crews, their apprehensions to beat the deadline because of the past-paced world of the media, and their experience of long hours of shooting and standing.

The struggles of the interns during their internship did not only provide the picture of their experience but also opens the door to the assessment of their curricular preparations before they were deployed. This is an innovative way to assess not only the students' performance in their internship but also to assess the implications of the result in terms of the institutional preparation of students before their internship.

Struggles in the context of the students experience imply the lack of curricular preparation and related learning experience in the field of mass media as affirmed by the participants during the informal dialogues on January 2019. The anxiety, fear, nervousness, and confusions are manifestations that they were not prepared or they did not have enough exposure to studio facilities, interviews, handling of cameras, and even real studio production techniques such as directing.

Struggles also imply the lack of training in building self-confidence. The participants expressed during the informal dialogues that they really need to build self-confidence so that they can withstand their fear in facing the audience and the camera. The lack of self-confidence was manifested in their anxiety and confusions in the performance of their assignments or tasks.

Struggles may also imply the lack of teambuilding training and exposure to tasks that require pressure and immediacy. The curricular outcomes might be too simple for the students to accomplish or these outcomes do not facilitate the development of the competencies that strengthen the students' ability to work under pressure or during difficult situations.

Conclusions

Based from the given findings of the study, it can be inferred that communication internship includes struggle as an element that propels the individuals to exert more efforts that reward the individuals in their simple accomplishments and transform them to become better persons in the mass media industry. Though there were struggles; however, communication internship reinforces and strengthen the curricular preparations of the students. In similar vein communication internship provides an innovative way to assess the implications of the students' experience especially their struggles.

Recommendations

Based from the conclusions, the following recommendations are generated: 1. strengthen the curricular preparations of communication students to include more exposures to mass media facilities and equipment and related learning experiences especially in the courses or subjects where these are required; 2. revisit the curricular learning outcomes to include more aggressive performance tasks in order to develop the target competencies; 3. Conduct regular processing of field experience to discover and unearth meaningful insights that can help the students to understand their chosen field; 4. Conduct regular training and educational activities that are geared toward building self-confidence and understanding group dynamics; 5. Expose students to varied contexts and environments that may sharpen their ability to chronologically work under pressure; and 6. Conduct similar research to other fields to test if similar results will be obtained.

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Speech and Stage Arts Activities and Development of Students' Self-Esteem

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ABSTRACT

This paper determined the influence of Speech and Stage Arts activities in the students' development of self-esteem. This ascertained activities that improved students' self-esteem. Students enrolled in the course during the first semester, AY 2018-19 were the participants. Questionnaire on Self-esteem and the Checklist on the different activities were the research instruments. Results show that 1) Students had high level of self-esteem as an entire group and when grouped as to different categories except only when grouped as to residence: urban; High school: private; and those with training where they had an average level of self-esteem. 2) Majority of the students indicated that the influence of Speech and Stage Arts to their self esteem was high, and when grouped as to the different categories, their perception of the influence of Speech and Theater Arts was also high, except only for civil status (single), High school (private), and Training (yes) where the influence of Speech and Stage Arts to their self esteem was very high. 3) No significant difference was noted in the influence of the Speech and Stage Arts activities to their self esteem when grouped as to different categories. 4) Speech and stage arts activities perceived to be beneficial to develop students' self esteem were: culminating activity, multiculturalism, and pantomime. Students signified their approval to such activities as contributory to their development of self-esteem. 5) Themes that emerged to influence students' selfesteem were Teacher inspiration and encouragement, Actual exposure, self-motivation and trusting oneself.

Keywords: Speech and Stage Arts, Self-Esteem, Development



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Introduction

Studies point to the fact that engaging children in the performing arts plays a hugely significant role in helping them to develop their creative skills. Likewise, educational theorists emphasize the relevance of "emotional intelligence," developing a creative mind and fostering personalities and imaginations as they journey through school, to become happy and well rounded individuals.

Because performing arts and/or stage arts (in the researchers' workplace), allows students to develop their creative passions, the activities therein help them communicate effectively with others with confidence. This course involves self expression, exploring alternative options and embracing individuality. The opportunity given to students help them establish belief in themselves and thus foster self-confidence and self-esteem. In fact, several studies have also indicated that students who take part in Stage Arts not only enjoy but also improved performance in more traditionally academic subject such as mathematics and English aside from improving their self esteem.

Speech and Stage Arts is a class for those enrolled in the Bachelor of Secondary Education, major in English in the University of San Agustin, Iloilo City, Philippines. It is a required course by the Commission on Higher Education. The researchers however, want to ascertain whether or not student engagement in activities in the Stage Arts has somehow improved their self-esteem. Howard Gardner's Theory on Multiple Intelligences (Gardner, 1999) and Carol Tomlinson's idea on differentiation (Tomlinson 2001) support these researchers' contention that stage arts can provide meaningful learning benefits to students apart from improving their communication skills.

The Problem

- 1. What is the students' level of self-esteem?
- 2. What is the influence of the Speech and Stage Arts course to the students' self esteem?
- 3. Is there a significant difference in the influence of the Speech and Stage Arts course to the students' self esteem when they were grouped as to the different categories?
- 4. What Speech and Stage Arts activities were perceived to be of benefit to students' self-esteem?
- 5. How do Speech and Stage Arts Activities develop students' self-confidence?

Conceptual Framework



Figure 1: The schematic framework of the study

Speech and Stage Arts

It takes a lot of courage for a person to go up on stage in front of people. Students in the classroom admit that there are certain factors that may spell success and/or failure when it comes to their performance. Most of the time, whenever they are asked to perform, certain kind stresses and challenges can negatively impact their performance and to many their performance is affected by their self-esteem. Low self-esteem not only has serious implications for their psychological and physical health, it also has an affect their performance. As teachers, there is a need to establish effective interventions to somehow address such issue. To the best of our knowledge, there are no reported studies specific to workshops or interventions on enhancing self-esteem for student performers.

In a study by Hammond and Edelmann (1991), questionnaires, including the Rosenberg Self-Esteem Scale



(Rosenberg, 1965) and the Revised Self Monitoring Scale (Lennox Wolfe, 1984), were administered to three groups. The participants were professional actors, amateur actors, and non-actors. The results for self-esteem were not significant, with all of the groups scoring 34 34 relatively high. However, both actor groups scored significantly higher than the non-actors did on self-monitoring. Participants in the present study were simply undergraduate students with acting experience. This also accounted for those who have had interest in and are capable of acting, even if they do not intend to pursue it in any form. Thus, individuals with acting experience were expected to indicate having a higher self-esteem than those without such experience. However, no significant relationship between self-esteem and acting experience was found. It was also hypothesized that students who had experience in acting would score higher on the Self-Monitoring Scale than students who had not. A significant positive relationship did exist between acting and self-monitoring.

In another study, performing and creative artists have unique occupational and lifestyle stresses and challenges that can negatively affect self-esteem (Shack, Meiyappan, and Grossman, 2018). In this study, low self-esteem not only has serious implications for their psychological and physical health, it can also affect their performance, and creativity. There is a need to establish effective interventions to deal with this issue. To the best of the researchers' knowledge, there are no reported studies specific to workshops or interventions on enhancing selfesteem for artists. The Al and Malka Green Artists' Health Centre at the Toronto Western Hospital, University Health Network, Toronto, Ontario, Canada, is a unique multidisciplinary, and integrative clinic serving the special needs of the artist population. They developed a workshop entitled "Building Confidence and Self Esteem Toolbox Workshop" to address this need. They then designed a single-blind, randomized, prospective, pilot study to evaluate the effectiveness of the workshop on enhancing self-esteem in artists, and to evaluate the long-term effectiveness of using the recommended tools in maintaining a healthy self-esteem, as well as maintaining physical and emotional health. Both quantitative and qualitative data were collected. A validated "Self-Esteem Checkup" questionnaire was administered pre- and immediately post workshop, as well as at 2, 6, and 12-month post workshop. Open-ended questions were posed to study participants via email at 2 and 12 months following the workshop, and at 6 months in in-person interviews. Thirty-five professional artists consented to participate in the study, with 26 completing all study visits. Mean scores for all time points, and the individual questionnaire statement mean scores for the five timepoints increased significantly post-workshop and remained statistically significantly improved by the 3rd follow-up 12 months later (p < 0.001). The mean self-esteem rating score increased significantly post-workshop and remained statistically significantly improved by the 3rd follow-up 12 months later (p < 0.01). Qualitative data showed positive feedback on the utilization of the tools learned in the workshop that helped maintain this improvement over a 1-year period. This workshop may be an effective means of addressing the issue of self-esteem in artists. Further controlled studies of larger sample size and longer duration are needed to confirm these findings.

In *How Dance can Improve your Self-Confidence* (Celebrity Dance, 2018), dance was noted to have many great benefits and one of the best ones is self-confidence that is usually taken from dancers lessons and performance. Learning new steps and choreography can create a sense of achievement. Another is communication skills also improve especially interaction with different partners. It also reduces shyness and increases assertiveness. Among others, dance performances create better self-image. It can be good for one's physical health, the ability to create beautiful lines and make one explore one's body's ability and foremost the opportunity to explore and discover one's own style. All these make dancers develop their self-confidence.

Method

This quantitative-qualitative investigation rests on the idea that activities in the speech and stage arts class bring about good effects on students' self confidence and self-esteem. To enable the researchers to establish the course's benefits, students enrolled in the subject during the current semester were identified as the target population. A total of 28 students were included in the study. A Checklist of the Activities done in the speech and stage arts were given to the students to identify the activities which for them helped improved their self-esteem.

The distribution of the respondents is shown in Table 1.



The Rosenberg Self-Esteem Scale (Rosenberg, 1965). This scale measures the extent to which an individual values and feels content with himself. It includes ten statements concerning 35 how one feels about and views himself. There are four Likert-type answering options, ranging from strongly agree to strongly disagree for each statement. The Rosenberg Self-Esteem Scale has a reliability of .73.

To establish the level of self-esteem among the students, the following scale of means and their corresponding description were used:

Scale	Description
3.41 - 4.00	Very High
2.81 - 3.40	High
2.21 - 2.80	Average
1.61 - 2.20	Low
1.00 - 1.60	Very Low

Table 1 shows the distribution of the respondents.

Categories		f	%
Total Respondents		28	100
Age	20 and Below	18	64
	21 and Above	10	36
Civil Status	Single	26	93
	Married	2	7.
Residence	Rural	18	64
	Urban	10	36
High School	Private	3	11
	Public	25	89
Training	None	25	89
	Yes	3	11
Experience	None	13	46
	Yes	15	54
Special Skills	None	7	25
	Yes	21	75
Sports	None	7	25
	Yes	21	75
Position School	None	18	64
	Yes	10	36
Position Other Area	None	24	86
	Yes	4	14

Table 1: The Distribution of the Respondents

Results

Based on the results of the study, majority of the students had high level of self-esteem as shown by the mean 2.96; SD=.35 as an entire group and when grouped as to the different categories except only when they were grouped as to residence: urban; High school: private; and those with training where the respondents had an



average level of self-esteem with means ranging from 2.21-2.80. However, with the rest of the categories, the students had high level of self-esteem with means ranging from 2.81-3.40.

Table 2 reflects the data.

Categories	Mean	Ν	SD	Description	
Total	2.96	28	.35	High	
Age					
20 and Below	2.97	18	.41	High	
21 and Above	2.93	10	.24	High	
Civil Status					
Single	2.95	26	.37	High	
Married	3.05	2	.07	High	
Residence					
Rural	3.04	18	.32	High	
Urban	2.94	10	.37	High	
High school					
Private	2.57	3	.38	Average	
Public	3.00	25	.33	High	
Training					
None	3.00	25	.33	High	
Yes	2.63	3	.42	Average	
Experience					
None	3.01	13	.42	High	
Yes	2.91	15	.29	High	
Special Skills					
None	3.09	7	.29	High	
Yes	2.91	21	.37	High	
Sports					
None	2.83	7	.41	High	
Yes	3.00	21	.33	High	
Position School					
None	3.01	18	.32	High	
Yes	2.86	10	.40	High	
Position Other Area					
None	2.95	24	.37	High	
Yes	2.98	4	.32	High	

Table 2.	Students'	I evel	of Self-Esteem
Table 2.	Students	Level	of Self-Esteelli

Legend: 1-1.6 - Very Low 1.61 – 2.2 - Low 2.21 – 2.8 – Average 2.81 – 3.4 – High 3.41 – 4 – Very High

Influence of the Speech and Stage Arts Course to the Students' Self Esteem

Based on the results of the study, majority of the students indicated that the influence of Speech and Stage Arts to their self esteem was high, with a mean of 2.97; SD=.41. When they were grouped as to the different



categories, their perception of the influence of Speech and Theater Arts was also high, except only for civil status (single), High school (private), and Training (yes) with means ranging from 2.41-3.40. But for those with experience, the influence of Speech and Stage Arts to their self esteem was very high with the mean of 3.41; SD=52.

Table 3 reflects the data.

Legend: 1-1.6 - Very Low

Categories	Mean	Ν	SD	Description
Total	2.97	28	.41	High
Age				
20 and Below	2.96	18	.35	High
21 and Above	2.93	10	.24	High
Civil Status				
Single	2.58	26	.38	Average
Married	3.06	2	.07	High
Residence				
Rural	3.05	18	.33	High
Urban	2.80	10	.37	Average
High school				
Private	2.57	3	.38	Average
Public	3.00	25	.33	High
Training				
None	3.00	25	.33	High
Yes	2.63	3	.42	Average
Experience				
None	2.91	13	.29	High
Yes	3.41	15	.52	Very High
Special Skills				
None	3.09	7	.29	High
Yes	2.91	21	.37	High
Sports				
None	2.83	7	.41	High
Yes	3.00	21	.33	High
Position School				
None	3.01	18	.32	High
Yes	2.86	10	.40	High
Position Other Area				
None	2.95	24	.37	High
Yes	2.98	4	.32	High

Table 3: Influence of Speech and Stage Arts Course to the Students' Self Esteem

Difference in the Influence of the Speech and Stage Arts course to the Students' Self Esteem when they were grouped as to the Different Categories



3.41 - 4 - Very High

Results of the Chi-square to test the significant difference showed not significant difference in the influence of the Speech and Stage Arts Course to the students' self esteem when they were grouped as to the different categories. The results were .531, .858, .096, .067, .126, .342, .251, .337, .385, and .974 which is higher than the tabular value of p < .05.

Table 4 reflects the data.

Categories	Self Esteem	Ν	U	Asymp. Sig. (2-tailed)	Interpretation	
Age	20 and Below	18	77.000	.531	Not	
	21 and Above	10			Significant	
Civil Status	Single	26	24.000	.858	Not	
	Married	2			Significant	
Residence	Rural	18	55.500	.096	Not	
	Urban	10			Significant	
High school	Private	3	13.000	067	Not	
	Public	25			Significant	
Training	None	25	17.000	.126	Not	
	Yes	3			Significant	
Experience	None	13	77.000	.342	Not Significant	
	Yes	15				
Special Skills	None	7	52.000	.251	Not Significant	
	Yes	21				
Sports	None	7	55.500	.337	Not	
	Yes	21			Significant	
Position School	None	18	72.000	.385	Not	
	Yes	10			Significant	
Position Other Area	None	24	47.500	.974	Not Significant	
	Yes	4				

Table 4:	Difference in the Influence of the Speech and Stage Arts course to the Students' Self
	Esteem when they were grouped as to the Different Categories

Speech and Stage Arts Activities Perceived to be of Benefit to Students' Self-Esteem

Based on the results, speech and stage arts activities that were perceived to be beneficial to develop students' self esteem were the following: culminating activity with 72 percent of the responses, multiculturalism with 20 percent, and pantomime with 8 percent. Students signified their approval to such activities as contributory to their development of self-esteem albeit their improvement in self confidence.

Figure 2 reflects the students' perception of Speech and Stage Arts' activities.





Figure 2: Speech and stage arts activities perceived to be of benefit to students' self-esteem

Culminating Activity Workshop. The students of Speech and Stage Arts organized a workshop that would enhance their skills in acting. Through this activity the students gained more confidence in their acting ability.

Culminating Activity. The Speech and Stage Arts student Culminating activity developed students' skills in organizing and planning a stage play. Students formed the different committees (Director, Scriptwriter, Music, etc.). Then, they used their class hours and vacant schedules in school to practice and to rehearse the whole play. During this time, students also presented some of their best output in class. They showcased their skills and talents in stage performances. Thus, they were able to have a successful one hour and 30 minutes stage play.

Multicultural. The students were tasked to research about the countries they like. Then, decided what specific culture or tradition of the country they would present like the national costume, the tourist spot, or the national food. One of the students represented East Timor, she wore an improvised national costume of the Timor-Leste people, used the country's greeting, and talked about fun facts of the country.

Pantomime. In this activity, the students were grouped and given a certain social issue that they should research about to plan, and act out as a mime. Example of the social issue provided was illegal use of drugs. The group, who got this issue, was able to present a creative pantomime by having a story line that is relatable and really occurring in the society of this generation. The group also showed that social and peer pressure can be a big factor of using, pushing, and dealing illegal drugs.

What's My Name? This activity enabled the Speech and Stage Arts students to reveal themselves or to share their most unforgettable experience that taught them very important lessons in life. And as a result, the students became more close to each other and learned to respect and to treat one another fairly. Knowing the side of their friends which they have not known yet deepened the friendship among the students.

The study of Shack, Meiyappan, and Grossman (2018), proves that self-confidence is built after participants were engaged in a Toolbox Workshop. In fact, it also has implications for the participants' psychological and physical health. It also affected their performance and creativity. There is a need to establish effective interventions to deal with this issue. Both quantitative and qualitative data revealed relevance to the development of self-confidence. Qualitative data also showed positive feedback on the utilization of the tools learned in the workshop that helped maintain this improvement over a 1-year period. This workshop was also effective means of addressing the issue of self-esteem in artists.

The results were also aligned with the study, *How Dance can Improve your Self-Confidence* (Celebrity Dance, 2018). Dance was noted to have many great benefits and one of the best ones is self-confidence that is usually taken from dancers lessons and performance. Learning new steps and choreography can create a sense of achievement. Another is communication skills also improve especially interaction with different partners. It also reduces shyness and increases assertiveness. Among others, dance performances create better self-image. It can be good for one's physical health, the ability to create beautiful lines and make one explore one's body's ability and foremost the opportunity to explore and discover one's own style. All these make dancers develop their self-confidence.



How do Speech and Stage Arts Activities Develop Students' Self-confidence?

Results show that when students were asked about how Speech and Stage Arts develop their self confidence, three themes were able to emerge: Teacher inspiration and encouragement, Actual exposure, self-motivation and trusting oneself. Majority of the students answered encouragement from the teacher inspired them to perform better and be confident about what they are doing with 85% of the responses, corrections from the teacher, push from the teacher, having a good motivator and a mentor; facing the crowd, delivering in front of others with 10%, and self-motivation and trusting oneself with 5%. These responses were extracted from the more or less 106 total responses from the students.



Figure 3: Speech and Stage Arts Activities Ways of Developing Self Confidence

Teacher inspiration for the students comes in many ways. One student said that "my self confidence was developed because of my teacher's encouragement that I can do it." "a big impact that helped me improve my self-confidence was my teacher that pushes me to get out of my shell," "teacher's corrections after every performance" and "encouraging me to do my best." Another said, "I owe everything to my mentor." Aptly said, the students' development of self-confidence was made possible partly because of a supportive teacher doing her part on how students can develop their self-confidence through Speech and Stage Arts activities.

Actual exposure in front of a crowd. Students emphasized that delivering in front of others is not easy but it is one way where they can get rid of their stage fright. One student said, "I was able to develop my self-confidence because the performances require me to be always ready," "Speaking activities expanded my vocabulary and provided me a venue to conquer my fear," "I was given a chance to know my strengths and weaknesses," among others.

Self-Motivation and trusting oneself. One student expressed that, "I was able to manage a big group of people because I begin to trust in may capabilities," "I managed to sing, act, and deliver effectively because little by little I have learned to overcome my anxiety through the activities."

Findings

- 1) Majority of the students had high level of self-esteem as an entire group and when grouped as to the different categories except only when they were grouped as to residence: urban; High school: private; and those with training where the respondents had an average level of self-esteem.
- 2) Majority of the students indicated that the influence of Speech and Stage Arts to their self esteem was high, and when they were grouped as to the different categories, their perception of the influence of Speech and Theater Arts was also high, except only for civil status (single), High school (private), and Training (yes) where the influence of Speech and Stage Arts to their self esteem was very high.
- 3) No significant difference was noted in the influence of the Speech and Stage Arts Course to the students' self esteem when they were grouped as to the different categories.
- 4) Speech and stage arts activities that were perceived to be beneficial to develop students' self esteem were the following: culminating activity, multiculturalism, and pantomime. Students signified their



approval to such activities as contributory to their development of self-esteem albeit their improvement in self-confidence.

5) Themes that emerged as to the influence of Speech and Stage Arts to the students' self-esteem were "teacher inspiration and encouragement," "actual exposure," "self-motivation and trusting oneself."

Implications of the Study

This study bears implications to speech and stage arts teaching and the development of self-esteem among the students. This affirms the importance of utilizing speech and stage activities in the students' self-esteem. The study also did demonstrate an improved self-confidence among students in their actual exposure, teacher encouragement and motivation, albeit a thorough elaboration that will further substantiate such effect. Bandura (1997) describes self-esteem as a component of self-efficacy. If speech and stage arts activities can be sustained and successfully integrated into the classroom, alternative pathways to improve student self-esteem may as well enhance overall student performance. Although gaps may continue to exist even after this study, such can be addressed by replicating and/or trying other strategies utilizing other venues and participants. The researchers believe that challenges still remain as regards the teaching of speech and stage arts and how success can be assured. Only one thing they are certain; that is, engaging students to more participative activities ensure an improved version of themselves.

Conclusion and Recommendations

Speech and Stage Arts activities as seen in this study have proved that self-esteem can be enhanced if students are given enough opportunity to hone their capabilities and abilities . The researchers believe that students who engage in the activities have an improved self-esteem. Students are able to prove among themselves that their engagement in the given activities gave them the chance to go beyond their comfort zones. Acting and speaking in front provided them an opportunity to better than what they really are as they assumed roles to perform. The researchers were able to discover that students who act are seeking outside sources to give them self-worth, even if they less value themselves.

This study has the tendency to elicit from the students, answers pertaining to the level of their self-esteem. The downside was that, it is human natural tendency to agree with the given statements as it is associated with how one feels about oneself. But the qualitative comments coming from them, candidly revealed what actually were true and how they were benefited from their actual experience during the Speech and Stage Arts activities' exposures.

This research could be improved with better operational measures. Based in the sources provided to the researchers, it can only be assumed that despite the shortcomings that this study has, the students' feeling about themselves was established and that the activities provided for in the course have proved their significance on the students' self esteem.

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Advocacy as a Strategy in Teaching: a Purposive Communication Experience

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ABSTRACT

This paper was in response to the thrust of the Commission on Higher Education (CHED) in the Philippines on how multimodal ways of presentation can be achieved. In this paper, a research-based alternative of creating an advocacy-based teaching strategy in the tertiary level was offered. Random students' outputs were chosen to present how the advocacy has been done. The researcher offers an epistemological justification that suggests advocacy in education as not only compatible with the concept of open-mindedness, but may also serve as a vehicle for the realization of a university's tripartite function: instruction, research, and community service in the form of service learning.

Keywords: Advocacy, Research-based, Purposive Communication Teaching, Service learning







Introduction

As a professor in the tertiary level implementing the new General Education curriculum, strategizing the teaching and learning process so as to foster critical thinking skills has been a tall order. With the course syllabus stipulating among others the use of multimodal presentation and service learning, not to include the university's tripartite function of instruction, research, and community service, each educator is left with a challenge of how curricular demands can be addressed.

With this, the advocacy framework has been introduced. This is a means for students to communicate in a meaningful channel using different starting points based on their individual interests. Designing strategies in this regard requires that the teacher makes sure about the different factors that come along the design process. Many strategies are available that may address these factors, and choices should be made based on the content, student needs, and context. One teaching strategy is to give students opportunities to apply what they have learned from an academic program to develop true understanding (Wiggins & McTighe, 2006, in Beacham and Shambaugh, 2017).

Researchers support that teaching decisions center around what is to be learned, student differences, and how one assists learners to learn and how one determines whether they have learned (Shambaugh & Magliaro, 2007 in Beacham and Shambaugh, 2017).

Meanwhile in the New General Education Curriculum, the emphasis on the use of multimodal presentation is one of those strategies listed in the course syllabus. As a teacher of communication arts for quite some time, I deem it proper to explore on ways on how students of today can take a more challenging route to the realization of their course requirements. With this, the use of advocacy as a teaching strategy has been explored as the main focus of this study.

The Problem

The University of San Agustin as a catholic institution has been incorporating more research, community service, and service learning apart from instruction. Service learning in the university offers students real-world, handson opportunities not available in the typical classroom structure and can promote an attitude of understanding and advocacy for individuals within the locality.

Taylor & Pancer, 2007; Shumer, 2005 assert that research conducted on these activities tells us that student involvement in the community, and the opportunities to help others within this service learning context, increase student engagement and commitment to individuals and groups outside of their typical sphere of contact. This is supported by the research that as student diversity in university communities grows, so does the interest in expanding the groups helped by this community service (DiMaria, 2006).

- 1) What is advocacy as a strategy in teaching Purposive Communication?
- 2) How was advocacy done?
- 3) How is the University's tripartite mission realized through the advocacy framework?

Conceptual Framework

Purposive Communication or General Education 5 in the University was offered last school year 2018-2019. Commission on Higher Education (CHED) Memorandum Order No 20 series of 2013 defines it as writing, speaking, and presenting to different audiences and for various purposes. In this regard, English teachers in the tertiary level explores on the different strategies that may bring about successful learning in Purposive Communication. It is in this light why the advocacy framework was brought to the fore.



Figure 1 shows the schematic presentation of the study starting from the tertiary students who were the participants of the study and who were the advocacy makers as a culminating requirement in the teaching of Purposive Communication.



Figure 1: The Schematic Presentation of the Different Variables involved in the Study

Purposive Communication in the Tertiary Level

Campillan (2017) in her column in the local newspaper, writes about Purposive Communication for 21st Century Learners. She discusses about Purposive Communication as a new general education subject expressed in CHED Memorandum No. 20, series of 2012. She said that the 21st century learners should not only be trained in only one skill, but they should be able to showcase expertise in listening, reading, and writing.

In this new GE subject, she said that students will be exposed to activities that will sharpen their skills. These activities include conversing intelligently on a subject of import, reporting on group work and or assignments, writing and delivering a formal speech, writing minutes of meetings and other similar documents, preparing a research or technical paper, and making an audio-visual or web-based presentation.

Aside from those, the same Memorandum includes the criteria for effective communication as discussed and used as the basis of peer evaluation of communication exercises in the class as well as for judging communication techniques used by public officials, educators, industry leaders, churches, and private individuals. According to CMO No. 20, the purpose of these combined activities is to enable students to practice strategies of communication with a clear purpose and audience in mind, guided by the criteria of effective communication and the appropriate language.

At the end of the semester, students in Purposive Communication are expected to be able to listen, comprehend, critique, and respond to live or recorded conversation, speak in public with confidence, explain extended texts using their words, write texts ranging from a simple report to a full length technical or research paper, as well as prepare audio-visual or web-based presentation on an assigned topic.

Methodology

This study utilized the reflective research strategy. According to Groenwald (2010), reflection is about interpreting own suppositions (and practices), by looking at own perspectives from those of others, and by subjecting own assumptions to critical review (Alvesson & Sköldberg, 2000). It should be evident that reflective research involves at least two levels, namely researching and paying much attention to own theoretical suppositions about practices—"*careful interpretation and reflection*" (p. 5) often interpretation is scant and occurs after data collection and categorization in the research process; whereas reflection is seldom mentioned and usually limited to conclusions, limitations of the study and technical matters. Moreover, he adds that reflection is firstly aimed at a heightened awareness of theoretical suppositions, of language and of pre-



understanding; but secondly aimed at the innermost of practitioners, of narrative and of the context. Reflective research is about systematic reflection on numerous levels—an "*interpretation of interpretation*" (p. 6). The process of reflective research comprises the (re)construction of reality in which practitioners perform, critically interpreting and reflecting. Reflection involves thinking about the prevailing conditions and the way in which underlying theory, cultural values and political perspectives impacts on interaction. "Reflection is difficult" (p. 245), because it requires pondering about premises of thoughts.

In this study, three classes in Purposive Communication used advocacy both as a teaching strategy and as a learning outcome. There were nine (9) advocacies created during the second semester of 2018-2019. These were: Promoting Oceans, Romanticizing Disability, Coastal Awareness, No to Revenge Porn, Healthcare Now, Travelling, Not to Teenage Pregnancy, Conquering the Rock, A Helping Hand Makes the World Smile. These were the students' outputs using the Advocacy framework. The Advocacy Projects were analyzed as to the objectives/outcomes raised by the proponents. Rubrics for presentation were also prepared for this purpose.

The Rubrics for the advocacy were based on the course objectives stipulated in the GE 5: Purposive Communication course. As a General Education professor, I believe that the overarching concept of advocacy as an activity is to improve people's lives in the areas where the students are assigned.

Advocacy as a Teaching Strategy

Advocacy is an activity in which one or more individuals actively work toward the betterment of people, living things, and the physical world. It becomes a teaching strategy when it is used to directly support student learning outcomes (Beacham and Shambaugh, 2007). The use of advocacy as teaching strategy sharpens the focus of the student activity all throughout the duration of the course. Students are likewise given the opportunity to make decisions by themselves in their performance of their course requirement following at least three elements: instruction, research, community service through service learning. These elements are embodied in the advocacy chosen. In this paper, advocacy was done through service learning. This offered students real world hands-on opportunities not available in the typical classroom structure. This also promoted the attitude of understanding and advocacy for individuals within their locale. Through the advocacy, students are also given the opportunity to develop an effective stance through their internalization of some values and acting upon such value and a way of improving the condition of the world in some way.

As a teaching strategy, the researcher has learned that advocacy can be used as strategy to 1) measure general education student's communicative skills; 2) Provision of a deeper understanding of themselves and the world in which they live; 3) Advocacy has become an affective engagement rather than a completion activity; and 4) Working collaboratively as a team promotes Augustinian values of *unitas, veritas,* and *caritas.*

Advocacy Framework in the Context of GE 5: Purposive Communication

Research shows that student involvement takes place when they are exposed to the advocacy framework. They are given opportunities to help others within the service learning context. With this framework, student engagement is increased as well as their commitment to individuals and communities (Taylor and Pancer, 2007; Shumer, 2005). The researcher utilized a research-based strategy in the formulation, implementation, and translation of the advocacy chosen.

Figure 2 shows the procedures.





University's Tripartite Mission Realized through the Advocacy Framework

The advocacy framework is necessary as a pedagogical strategy. It is a way for Purposive Communication teachers to design lessons in ways that may empower student decision-making. Such experiences are vital in connecting instruction, research, and community service.

This strategy utilized advocacy in purposive communication may be reified on a pedestal to channel development of higher order thinking skills necessary for the 21st century world. The apparent success of the advocacy strategy is that it promotes service learning projects done through community service and expose the students in the community. Figure 3 shows the realization of the university's tripartite function: instruction, research, and community service through SL.





Figure 3: The University's Tripartite Mission Realized through the Advocacy- Based Project

The teaching of Purposive Communication may be able to integrate instruction, research, and community service through SL in the utilization of Advocacy-based classroom activities. Activities through advocacies are beginning to go beyond immediate community service in the form of service learning to promote a long-term commitment to advocacy for different causes among the students. This academic move can also reflect the interests shown within the professional world to advocate for disadvantaged populations in some project choices.

This experience helped the researcher to provide accommodation and implement strategies that allowed students to focus also to what they are good at, their interests, and their course preparation. Aptly put, the advocacy framework is supported by the philosophy 'Focus on what students *CAN* do, not what they *CANNOT*.' In the inclusive classroom, this is also appropriate as this strategy will differentiate learning among the diversified nature of students.

Now, a year later, the positive outcomes of using student advocacy were revealed: students are empowered to find their voice and to realize their needs. Advocacy focuses on students' efforts in learning more about themselves, their needs, and the community in which they live not counting how this can impact their learning in purposive communication. It bridges the gap between student and teacher to allow them to communicate what they need. It increases their confidence and self-esteem because they are more aware of their strengths and they have been given the tools they need to be successful.

Implications

It is recognized that advocacy as a framework has been given importance in the classroom. The strategies in which advocacies are supposed to be done and the contexts in which they rest may have implications among teachers and on how they teach. However, in order for teachers to make use of advocacies in their teaching, the dimensions in which advocacies are anchored need to be familiar to them. And that they may be able to recognize how advocacies can make a difference on the way they teach. Only then, can the results of this study be able to find their significance in the teaching of purposive communication.



Final Words

Advocacy provides a context for students to engage in hands-on activities. As a strategy, it was a platform for students in Purposive Communication to realize the University's tripartite mission of instruction, research, and community service through SL. It was also a venue for them to translate their advocacies. In this investigation, advocacy as a teaching strategy was explored in ways that provided independence and empowerment to students. If planned well, a lot of advocacies can be created by students given appropriate instructions and time to decide best for themselves, for their learning, and for their social responsibility.

Recommendations

- 1) Advocacy is a process that can be executed in many different ways. Its diverse ways and comprehensiveness may also be explored.
- 2) Planning and organization of advocacy related activities can be a strong base to practitioners in academic institutions. Thus, a genuine desire for its advocates can impact instruction, research, and extension.
- 3) Other strategies to make use of advocacies in the academe can be explored with the cooperation of the social advocacy and extension office.
- 4) Within the school community, a better and informed way of advocacy engagement may be considered to sustain linkages, promote the University charism, and institution change.
- 5) Whatever steps can be undertaken, the quality and power of individual action can make a difference in advocacies instituted in the University.

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Appendices

A Presentation of Advocacies





4_Paper100

The Impact of Learning Motivation on Students' Knowledge Acquisition in Hanoi

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ABSTRACT

This study aims to explore faculty capacity, learning motivation, students' impression on university and development competitiveness on students' knowledge acquisition. Research methods include questionnaire surveys and use multivariate data analysis (Cronbach Alpha test, EFA and CFA). Data were collected from 978 undergraduate students studying in 5 universities in Hanoi. Our results reveal that students' knowledge acquisition depends directly on their impression on university, faculty capacity, learning motivation and development competitiveness. Faculty capacity indirectly affects students' knowledge achievement by learning motivation. The study also assesses knowledge acquisition by the students based on expectations and compares the difference between the expectation model and the feeling model. The results yield recommendations for universities, department heads and university administrators.

Keywords: Learning Motivation, Knowledge Acquisition, Faculty Capacity, Students' Impression on University, Development Competitiveness





Introduction

The learning effectiveness in general and the effectiveness of academic disciplines is a very important issue for today's training systems, especially when the demand of professionally trained labor force is increasing during the duration of Vietnamese open. To meet the market demands, the teaching system needs to innovate their training models, concentrate to train more qualified human resources with a high level of expertise. This requires the university to consider the element of knowledge acquisition and students' ability to apply knowledge into practice, which is the result of the teaching process. To improve students' knowledge acquisition with major subjects, the university needs to research, understand the key factors that can impact it, such as creating motivation for students, improving teaching quality.

One of the key factors to decide the effectiveness of teaching and learning is the learning motivation (Carver & Scheier, 1990; Goetz et al., 2006; Op't Eynde et al., 2006; Pekrun et al., 2002; Kim, 2013). Students with low learning motivation will not want to start or continue their academic work (Kim, 2013). In contrast, students with high learning motivation will endeavor to receive knowledge and complete assignments, therefore they will have higher general subjects' results as well as the results of major subjects' results. According to the study of LeBlanc and Nguyen (1999) in Canada, how students feel about the knowledge and quality of training through teachers is an important factor in creating value in training. The study of Tang (1997) in the United States shows how effective the teaching is influenced by a variety of factors such as the preparation of lectures and classroom interactions. The study also suggested that teachers want to receive the reward should focus on contributing factors for effective teaching.

In Vietnam, there has also been a number of studies on the creation of learning motivation and the impact of motivation on students' knowledge acquisition such as the study from Nguyen, et al. (2009). The results of the study show the signal quality of the teaching program and faculty will contribute significantly to the feel of the quality of the graduate program. Nguyen, et al. (2008) study the teaching effectiveness with students from five universities in Ho Chi Minh City to demonstrate the influence of the faculty capacity of teachers to the learning motivation and student learning effectiveness.

However, the number of studies on creating learning motivation and considering the impact of the motivation of students in Viet Nam is quite modest and is only done in some southern schools. Researches also only assess the knowledge received based on the perception after learning without the assessment based on student expectations and compare the difference between the expectation model and the feeling model. Therefore, the subjects of this research are implemented to explore and verify the factors affecting students' learning motivation, the impact of learning motivation on the learning outcomes and students' knowledge acquisition with major subjects at universities in Hanoi, then provide implications for university administration, improve training quality at universities to satisfy the labor market demands.

Theoretical and research hypotheses

Knowledge acquisition

Knowledge acquisition is one of the most important goals that universities and students aim for. Knowledge is information that people receive through experience or through educational activities. Knowledge represents the grasp of facts, facts and the ability to understand the foundations and theoretical bases. At school, knowledge is the concept, information, rules that students are provided, trained by teachers and schools through practice, practice as well as from students' self-search in other resources in social life. In terms of skills, this is the ability to handle and apply knowledge in specific practical situations. Skills are developed through practice in the training process and will help in the future of students. The learning outcomes are to evaluate all students' knowledge and development skills after learning the contents of the subject (Young, Klemz & Murphy, 2003).

There are many perspectives and ways to measure knowledge acquisition in studying at universities. Hammer (2000) defines the knowledge gained as a student's academic performance reflected by the subject score. Clarke



et al. (2001) argue that learning outcomes are students' self-assessment of academic progress and job search results. In this study, based on Young et al. (2003), the author defines the knowledge acquisition as general assessments of the students themselves about the knowledge and skills they acquire during the learning process. specific subjects at school. Jeffrey et al. (2004) define knowledge acquisition as the level of knowledge, skills, attitudes or behaviors reflected in the objectives of each curriculum. According to Young et al. (2003), students' knowledge is defined as general assessments of students for the knowledge and skills they acquire in the course of studying subjects at school.

The measurement of knowledge acquisition can be based on the subject's score (Hamer, 2000) or based on the student's self-assessment of the learning process and job search results (Clarket et al., 2001). The knowledge and skills of students are the most focused goals for universities and students because it is the result of teaching activities. Universities focus on improving, innovating activities as well as supporting students to help students be thoroughly equipped with the necessary knowledge and skills. Besides, students for universities also expect to learn, cultivate knowledge that can serve their working process well and develop their careers.

Students' learning motivation

Nguyen et al. (2008) define learning motivation as the desire to participate and learn the content taught in the curriculum. Learning motivation is often measured based on effective self-assessment, which is an appropriate method to predict an individual's performance (Cole et al., 2004).

Learning motivation reflects the decision-making process of students to shape the orientation, concentration and effort of students in the learning process (Cole et al., 2004). Learning motivation promotes knowledge acquired by students (Lepine, 2004). Learning motivation increases the knowledge and skills acquired by students so students with high learning motivation will have a more effective and persistent learning strategy in accumulating knowledge and skills. more (Bluemenfeld et al., 2006, Nguyen et al., 2008). Therefore, the author proposed a hypothesis:

H1: There is a positive relationship between learning motivation and students' knowledge acquisition.

Faculty capacity

Falcuty capacity is a multidimensional construct consisting of many components (Marks, 2000; Nguyen, 2010). Although the number and content of the components differ between studies, there is still a certain similarity between the factors considered. Specifically, the class organization component is mentioned continuously in the studies of Marks (2000), Nguyen et al., (2010). Secondly, the interaction between faculty and students is included in the studies of Marks (2000), Abrantes et al. (2007), Nguyen et al. (2010). However, having many different components between studies creates conceptual duplication. For example, according to Abrantes et al. (2007), students' level of excitement may be a result of faculty capacity rather than a component of it. The ability to self-study can be a personal characteristic of the student or the result of the faculty capacity to teach. Thus, the above-mentioned components may be included in the quality of teaching when students evaluate faculty capacity. Therefore, in this study, the author uses the faculty concept in the study of Nguyen et al. (2010) including 3 components: (1) lecturer - reflecting the teaching skills of the lecturer, including lecturers' knowledge about subjects, communication ability and level of investment of lecturers for subjects, (2) course organization and (3) classroom interaction.

Research by Nguyen et al., (2010) shows that faculty capacity has both direct influence on students' knowledge acquisition and indirect influence through influencing learning motivation. It helps to increase the learning motivation and knowledge acquired by students when giving students the interest from determining the goal and value of the subject. Therefore, the author proposes the following two hypotheses:

H2: There is a positive relationship between faculty capacity and learning motivation of students H3: There is a positive relationship between faculty capacity and knowledge acquisition.

Students' impression on universities



Impression on brand of product or organization reflects customer perception of brand (Aaker, 1996; Balmer & Greyser, 2006). The university is also a form of service organization here that is providing knowledge for students. School impression is the feeling of students about the brand, the image of the school, thus, the decision to choose the school of potential students (Kotler & Fox, 1995). Students feel that a prestigious university will tend to believe that the school has a highly qualified faculty, who will equip them with the necessary knowledge and skills for future work (Nguyen et al., 2009), from which there will be more motivation to listen to lectures by lecturers. Therefore, students who have a better impression of the university they are studying will have a stronger motivation to study.

H4: There is a positive relationship between school impression and learning motivation.

Development competitiveness

Ryckman et al. (1996) define development competitiveness as an attitude that focuses on personal development or becomes proficient in a job instead of results (eg victory). In other words, for those who compete for growth, competitiveness is to develop their own abilities. Development competitiveness brings many benefits to society (Sampson, 1977). The success of people with competitive development tends to be individuals who cannot be separated from others - for those who have a competitive viewpoint there must be "winners and losers." The success of development competitionists is always associated with society, often concerned with the feelings and interests of others and tends to cooperate in a spirit of equality (Ryckman et al., 1996).

In the university environment, among students, there is a growing competition. They compete, and work together to achieve the highest results in learning. This competition serves as a leverage for students to develop their own abilities (Ross et al., 2003; Ryckman et al., 1996). They conceive that they themselves cannot be separated from class and always cooperate with other members in the class - not just students but teachers. Therefore, their level of engagement with faculty and learning motivation will be high, from which knowledge acquisition is also high (Nguyen et al., 2009). In other words, when the level of competitiveness grows highly, the motivation of students will be higher. Therefore, the author proposed a hypothesis:

H5: There is a positive relationship between development competitiveness and learning motivation

Research models

The research model is composed of two models which are expected models (assessing relationships in students 'expectations with subjects) and perceived models (assessing the relationship in students' feelings with subjects). The main research variables in the model include multidimensional scale of faculty capacity (including teaching, organization of subjects and classroom interaction); Unidirectional scales include school impression, development competitiveness, learning motivation and knowledge acquisition.







Methodology

Research design

Design research scales in the model

Each construct in the model is measured through 3 or 4 items. The items are referenced from previous studies and adjusted to match the research context.

The scale used to measure aspects of the factors (measurement of items) is the 5-point Likert scale. The authors used the 5-point Likert scale with a score of "completely disagree" and point 5 was "fully agree". In addition, the survey also includes two sections of questions that are screening and categorizing subjects, (1) demographic information, (2) difficulties in studying specialized subjects of students; and the scale used for categorical variables is a scale of identification or hierarchy, depending on the type of data.

Sample and research data collection methods

Subjects of the survey were identified as students of five universities who studied specialized subjects (years 2, 3 and 4) in Hanoi. The research sample was collected by stratified composite method. Selected universities are divided into 2 sectors, including Hanoi University of Technology, Post and Telecommunications Institute of Technology representing the engineering sector; National Economics University, Foreign Trade University and the Academy of Finance represented the economic and business sector. The sampling rates from each university are divided according to the admission rates of national universities in 2018 and their general enrollment scale. Cluster sampling method is taken at each class, which means the authors surveyed every student each chosen class. The official survey results from 1,100 questionnaires collected 978 samples to reach the response rate is 97.8%. We sent 1,100 questionnaires through direct questionnaires and collected 978 valid questionnaires. From the results of the survey, it can be seen that the number of students surveyed is based on the number of students of the schools, namely, 344 students of Hanoi University of Technology (accounting for 35.2%), there are 236 students of National Economics University (accounting for 24.1%), 215 students of Hanoi Foreign Trade University (accounting for 22%), the number of students surveying at the Academy of Finance is 110 students (11.2%) and at the Post and Telecommunication Institute of Technology (73%). The survey was conducted by direct interview method through the help of the university lecturers mentioned above. The survey time is conducted in 04 months from 01 to April 2019. Each survey student selects a specialized subject they have learned to evaluate.

Methods of data analysis

After collecting, research data is encrypted and processed cleanly, conducting analysis and evaluation with the support of SPSS 22.0 and AMOS software.

Research data was analyzed using multivariate data analysis methods. To assess the reliability and validity of each construct in the model we used the confirmatory factor analysis (CFA). First, we evaluated the measurement model for each multidimensional scale (innovativeness and non-financial performance) to assess their reliability and validity. Next, the saturated model was used to evaluate the final model that evaluates the model's reliability and overall model fit with actual data. The model was considered to achieve overall model fit to the actual data when the Chi-square/df coefficient is less than 3; CFI, IFI are greater than 0.9 and RMSEA is less than 0.08 (Hair et al, 2006). The factor loadings within each factor was larger than 0.5 show that the construct reached convergent validity within each construct. The constructs achieve reliability when composite reliability and Cronbach's Alpha coefficients are larger than 0.7, average variance explained (AVE) is larger 50% (Hair et al, 2006). To assess discriminant validity between constructs we used as the criteria the square root of AVE is larger than the correlation between the construct in the research model. We used structural equation modeling to analyze data to test hypotheses with criteria statistically significant at a level of 5%. The degree of common method bias was identified can impact on the study results. Therefore, we used two different



data collection methods to collect research data. Data was also checked for potential bias with Harman's test and common latent factor analysis.

Descriptive statistics of research samples

The variables classified as: school name, gender, number of years of university study, academic function and position of the lecturer, etc. are classified by basic indicators describing statistics through observation and table frequency according to predefined signs. Statistical results of sample description are presented in the following table:

	Classification criteria	Number of people	Rate (%)
	Hanoi University of Technology	344	35.2
	National Economics University	236	24.1
University	Hanoi Foreign Trade University	215	22.0
University	Academy of Finance	110	11.2
	Post and Telecommunication Institute of Technology	73	7.5
	Female	563	58.3
Gender	Male	400	41.4
	Year 2	179	18.6
	Year 3	635	65.9
School year	Year 4	144	15.0
	Year 5	50	0.5
	Masters	261	29.0
Post-university diploma	Doctor	410	45.7
	Unknown	226	25.2
	Associate Professor	172	24.0
Academic's rank	Professor	39	5.4
	Unknown	507	70.5

Table 1. Description of the sample of the investigation

Research results

Exploratory Factor Analysis (EFA)

Exploratory factor analysis with multidimensional scales

The exploratory factor analysis shows that the KMO coefficient in the after-school learning experience is greater than 0.5 (0.939), the Bartlett test is statistically significant (p-value = 0 < 0.05), the factor loading factor is larger than 0.5, total variance explained is greater than 50% (73.195%). Thus, the multidirectional scale of faculty capacity with three factors (teaching, organizing classes, classroom interaction) has reached convergence.


Items		Component						
Classroom interaction 3	0.798							
Classroom interaction 4	0.763							
Classroom interaction 2	0.736							
Classroom interaction 1	0.735							
Course organization 3		0.813						
Course organization 2		0.712						
Course organization 1		0.626						
Course organization 4		0.583	0.570					
Teaching 2			0.836					
Teaching 3			0.701					
Teaching 1			0.627					
KMO		0.939						
P-value		0.000						
TVE (%)		73.195						

Table 2. Result of exploration factor analysis with multidimensional scale

Exploratory factor analysis with dimensional scales

The factor analysis revealed that the KMO coefficient of perception after learning was greater than 0.5 (0.891), the Bartlett test was statistically significant (p-value = 0 < 0.05), the factor loading factor was larger. 0.5, total variance explained is greater than 50% (76.046%). Thus, the scale of unidimensional motivation for learning and impression of schools and learning competition has achieved convergence.

Table 3. Result of exploratory factor analysis with unidimensional scale

Items		Component	
Learning motivation 2	0.868		
Learning motivation 3	0.851		
Learning motivation 4	0.830		
Learning motivation 1	0.829		
Development competitiveness 2		0.877	
Development competitiveness 4		0.850	
Development competitiveness 1		0.836	
Development competitiveness 3		0.812	
Impression on university 2			0.863
Impression on university 3			0.856
Impression on university 4			0.793
Impression on university 1			0.782
KMO	0.891		
P-value	0.000		
TVE (%)	76.046		



Exploratory factor analysis for dependent variables

The factor discovery analysis shows that the KMO coefficient of after-school perception of learning motivational factors, development competitiveness and school impression are greater than 0.5 (0.848), testifying Bartlett to be significant. Statistics (p-value = 0 < 0.05), factor loading factors are greater than 0.5, total variance explained is greater than 50% (79.051%) and items converge into a single factor (Table 4). This shows that the dependent variable reaches the required convergence value.

Dependent variable	Component			
Knowledge acquisition 2	0.899			
Knowledge acquisition 4	0.892			
Knowledge acquisition 1	0.883			
Knowledge acquisition 3	0.883			
КМО	0.848			
p-value	0.000			
TVE (%)	79.051			

Table 4. Exploratory factor analysis with dependent variable

Official scales evaluation results

Model of measuring multidimensional scale

The study uses a quadratic construct (multidirectional scale) as a variable of faculty capacity consisting of three components: teaching, class organization and classroom interaction with two models that are expected models and feel pattern.

The results of the measurement model analysis show that the model is compatible with the actual data: Chisquare / df = 2.784 is smaller than 5, CFI = 0.990; GFI = 0.981; TLI = 0.985; IFI = 0.990 are greater than 0.9, RMSEA = 0.045 less than 0.08. After eliminating the items with a small factor loading factor (less than 0.5), the remaining items show convergent values.

The bootstrap analysis results show that the 95% confidence interval of the correlation coefficients does not contain value 1. This indicates that the components in the omnidirectional scale of faculty capacity are discriminative and constituent Single direction in multi-direction scale.

The results of general reliability analysis and extracting variance show that the components of the factor are multidirectional scales with load factor greater than 0.5. The combined reliability coefficients of factors with values above 0.7 and extract variance (AVE) are greater than 50%. This indicates that the formal factor scales have gained the necessary reliability.

Construct	N of items	Composite reliable	Average variable extracted (AVE)
Lecturers			
Teaching	3	0.851	0.657
Course organization	4	0.859	0.604
Classroom interaction	4	0.843	0.574

Table 5. Results of testing the reliability and convergence value of the multidimensional scale



Results of saturatured model

The analytical results show that the model is compatible with the survey data with appropriate indicators of satisfactory models: Chi-square / df = 2.385 is smaller than 5, CFI = 0.977; GFI = 0.946; TLI = 0.974; IFI = 0.977 is greater than 0.9, RMSEA = 0.038 is less than 0.08. The test result by bootstrap method with the returned sample size of 1000 shows that the 95% confidence interval of the correlation coefficients between the variables does not contain value 1. Therefore, the scales in the research model saved the difference.

The results of general reliability analysis and extracting variance show that the components of the factor are multidirectional scales with load factor greater than 0.5. The combined reliability coefficients of factors with values above 0.7 and extract variance (AVE) are greater than 50%. This indicates that the formal factor scales have gained the necessary reliability.

Construct	N of items	Composite reliable	Average variable extracted (AVE)	
Lecturers	3	0.943	0.847	
Learning motivation	4	0.889	0.668	
Knowledge acquisition	4	0.912	0.721	
Students' impression on universities	4	0.881	0.651	
Development competitiveness	4	0.904	0.703	

Table 4. Aggregate reliability coefficient and variance extract factors in the model.

Results of testing hypotheses

Analysis results by linear structure model after adjusting some possible relationships between the errors of the items in the factors show that: Chi-square / df = 2.453 is smaller than 5, CFI = 0.976; GFI = 0.944; TLI = .972, IFI = .976 greater than 0.9, RMSEA = 0.039 less than 0.08. Thus, it is possible to conclude the model in accordance with market data.

Learning motivational factors (perceptions): Three factors are considered: faculty capacity (GVA) and development competitiveness (CTA) both positively affect the motivation factor of learning (DCA) at 5% (p-value is less than 0.05). In which, the standardized beta coefficient is $\beta_{GVA} = 0.463$, $\beta_{ATA1} = 0.094$ and $\beta_{CTA1} = 0.163$.

Factors of knowledge acquired (perceived): Two factors are considered: faculty capacity (GVB) and learning motivation (DCB) both positively affect the knowledge-taking factor (KTB) at 5% (p-value is less than 0.05). In which, Beta standardized is $\beta_{\rm GVB} = 0.56$ and $\beta_{\rm CTB1} = 0.377$ respectively.

The results of the regression coefficients of the model's impact relations show that most relationships are statistically significant at the 5% significance level.

Variab	Variables relationship		Standardized beta	Standard errors	Critical value	p-value	R ²
GVA	>	DCA	0.463	0.061	10.159	< 0.001	
ATA1	>	DCA	0.094	0.046	2.394	< 0.017	0.442
CTA1	>	DCA	0.163	0.042	4.302	< 0.001	
GVA	>	KTA	0.523	0.051	14.06	< 0.001	
DCA	>	KTA	0.423	0.033	13.253	< 0.001	0.735

Table 5. Regression coefficient of relationships in the model with the perceived model



Conclusion and Implications

The results of the study indicated that the faculty capacity and the learning motivation strongly impact on the knowledge acquisition of students. It is also pointed out that the average feeling of the students tends to be lower than the average expectation due to the wide range of requirements for the learning environment is not yet met. In particular, the faculty capacity is bound to have a direct impact on acquired knowledge and causing indirect impacts through the ability to stimulate student motivation. This key role of faculty capacity is to present in both expectation and feel models. Next, the role of competitive development for students in both previous expectations and feelings after school is also confirmed. In particular, the relationship between the faculty capacity with the learning motivation or with the knowledge acquisition in the highly competitive students is higher than in the low competitive students. In addition, the university impression factor has a certain impact on students' knowledge acquisition when considering the expectation of students before they learn, however after school, students find this no longer affects their motivation and knowledge acquisition. On the other hand, the study also clarified the differences between students of economic and technical universities. Hence, technical students have the gap between expectation and feel smaller than the economic students by the content and methodology of teaching subjects with more practical attachment.

Based on the results, a number of appropriate directions are proposed to create motivation and to improve the quality of students' outcomes. First, it is crucial to improve the faculty capacity, especially in course organization, classroom interaction, thorough lecture preparation. Second, the teaching system needs to focus on promoting student learning motivations through orientation to help students identify goals with each subjects to find the effective learning method. Being encouraged by the university and faculty, students will be stimulated to spend more time and effort on subjects. Third, the school should focus on building and highlighting their brand image in the eyes of students and strategic partners. To do that, the school need to maintain and develop standardized teaching programs, ensure the investment of physical facilities as well as supporting student activities, etc. Fourth, universities need to enhance competitiveness in learning, encourage students to explore their abilities while contributing to the lecture as well as support their peers. Finally, the university should mind the level as well as the ability to meet the students' demand compared to the expectations or needs of students to make appropriate adjustments.

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Interactive Media Versus Textbook: A Comparison study in teaching Philippine History

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ABSTRACT

The study determines the level of motivation of senior high students of La Consolacion College-Bacolod between textbooks and interactive media. The results of this study showed that as a whole, there is a significant difference between textbooks and interactive media. The result of the study was analyzed with the use of statistical software to know the level of motivation of Senior High School students a mean and standard deviation was used followed by the verbal interpretation table. To test the hypothesis about the comparison between the textbook and interactive media, a paired sample ttest was performed by the researchers to determine the relationship of the variables. The results also implied that in terms of tracks and grade level, there is no significant difference in motivational scores while in sex and grouped as a whole there is a significant difference on motivational scores when used in teaching Philippine history. Quantitatively, the study used descriptive-comparative research approach since it seeks to describe the occurrences of certain phenomena and how these occurrences vary between cases (Esser 2017). This included one hundred twenty students (N=120) within the selected research locale. The researchers formulated an instrument composed of thirty (30) items, (15) items for textbook and (15) items for interactive media with a four likert scale which was deemed valid to compare the level of motivation of senior high school students between textbook and interactive media when used in teaching Philippine history as validated by three experts in the field. The instrument were extracted from the Philippine History subject in accordance with CMO 105 series of 2017.

Keywords: Comparative Study Between Interactive Media and Textbook, Level of Motivation Between Interactive Media and Textbook, Teaching Dimensions and Possibilities, Digital Innovations, Students Performance and Assessment, Motivation





Introduction

A Chinese proverb says: "Tell me, and I'll forget. Show me, and I may remember. Involve me, and I'll understand." Education is the expansion of information, skills and ideals. It is vital because it empowers individuals in a society (K. Miron, P. Cher, S. Mathew, L. Tinio, 2018). It involves aspects of their upbringing, the learning of values and social mores, the development of knowledge about the way in which society operates, (*A*. Ashman, RConway 2017), systems of schooling (Gibson, 2013) and developing talents in all areas of life (D. McKibbin, 2017) Through it, people have acquired information and skills necessary in the improvement of human lives as a whole.

One of the main considerations in education is the use of varied approaches and strategies to cater individual learning needs of the students. The most important learning skill is "learning to learn". The most important knowledge is "self-knowledge" (J. Nisbet, J Shucksmith, 2017). In order to keep abreast with millennial trends, educational systems and all related aspects have also evolved through time. The rapid development of computer discipline has substantial effects on education, both on educational content, and the educational methods (M. Bogdanovic, 2014) that offers flexible learning opportunities to the twenty-first-century learners (D. Gedera, J. Williams, N. Wright, 2015). With that, the evolution of instructional visual aids has also created an impact among the learners. Visual aids are the best tool for making teaching effective and the best dissemination of knowledge. (G. Shabiralyani1*, K. Hasan2, N.Hamad3, N. Iqbal4, 2015).

The basic pen and paper strategy, while still used in conventional institutions especially in developing countries, have been slowly replaced by a more advanced instructional technology in developed countries. Since interactive media have been identified as a current trend in education, and experts in the field have projected an influx of adoption of interactive media within the next few years (Becker 2010). To this generation of students, known as digital natives, the integration of digital technology and books is appealing (Prensky, 2001).

An upgraded level of educational technology materials have been viewed as advancement in the academe. These technologies offer the potential to open doors and build bridges by expanding access to quality education (M. Escueta, V.Quan, A. Nickow, P. Oreopoulos, 2017). Effectiveness of a learning tool can be investigated in a variety of ways. Research has shown that motivation is associated with student learning and achievement (Schunk, Pintrich, & Meese, 2007) and is important to consider when studying literacy. Cox & Guthrie (2001) found that learners' motivation to read was a major contributor to reading achievement. Thus, motivation can be used when evaluating the effectiveness of interactive media as a learning tool. This pilot study compares the use of interactive media and traditional books on undergraduate students' motivation.

Statement of the Problem

The study aims to determine the level of motivation of Senior High School students of La Consolacion College Bacolod exposed to textbook and interactive media based teaching of Philippine history for the academic year 2018-2019 when they are grouped according to sex, tracks, and grade level.

Framework of the Study

This study is anchored on One popular framework of motivation that is related to instructional methods is the ARCS Model of Motivational Design. This framework is based on the assumption that learner and instructional material interaction is essential and that attention, relevance, confidence, and satisfaction are key elements for motivation (Keller, 1987). Attention is the response of the learner to the instructional material's stimulus. It refers to the ability of the instructional material to gain the learner's attention. Relevance refers to the learner's perceived applicability to current and future tasks of the learning material. Confidence has to do with the learner's positive expectations of the instructional material, and satisfaction refers to the leaner's positive attitude (Keller, 1987). Applicable to learner's motivation as it related to instructional methods the ARCS Model



of Motivational Design is an appropriate framework upon which to examine the effectiveness of interactive media and traditional textbooks for instructional purposes. Since motivation cannot be directly observed, self-reports are most commonly used to measure motivation. Numerous motivation instruments have been developed and validated (Schunk et al., 2007). An instrument derived from the ARCS Model of Motivational Design and that has been widely used and validated is Instructional Materials Motivational Survey (IMMS) (Keller, 1983).

Since education plays a big part in a person's development. Hence, schools continually develop programs and strategies to help cater to every student's need. When it comes to learning, students do not have the same style. Although the topics in each level are already plotted in the curriculum, the teaching strategies usually vary because not everyone absorbs knowledge the same way. Back then, the Socratic method was the usual teaching set-up where students listened to the teacher's lecture and had oral recitation as the means of measuring their understanding of the lesson (Stenning, 2016). In addition, books were the means of discovering more lessons. Such materials served as curriculum guides.

As time passed by, student learning was explored. Howard Gardner has identified seven distinct intelligences (Herndon, 2018). This theory has emerged from recent cognitive research. According to Gardner, "we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, and the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences - and in the ways in which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains." (Lane, 2018).

Gardner says that these differences "challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner further adds that "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means." The learning styles are as follows: Visual-Spatial, Bodily-kinaesthetic, Musical, Interpersonal, Intrapersonal Linguistic, and Logical -Mathematical. Initially, it may seem very difficult to teach to all learning styles. However, as educators innovate their teaching styles by exploring media, it becomes easier. As the school system opens up to more learning styles, it becomes clear why multimedia appeals to learners and why a mix of media is more effective.

With the discovery of different types of learning comes innovation. Learning can elaborate contemporary learning theory by being linked to the notion of practice-based learning (K. Illeris,). This is where games for learning comes in the picture. Few would dispute that games are learning environments with characteristics that differs to such an extent from those of other genres that they should be classified as a genre of their own. Some advocates go even further and make the case that game-based learning in other forms that they should be described as a unique model of theory of learning (Gee, 2003; Prensky, 2003). Thus, the educational system is now opening its doors to interactive learning through the use of games (Haydon, 2017).

Methodology

Quantitatively, the study used descriptive-comparative research approach since it seeks to describe the occurrences of certain phenomena and how these occurrences vary between cases (Esser 2017).

The researcher uses the descriptive method to collect information from the participants to statistically analyse every aspect of the data (Ritchie *et al.*, 2013). The aim is to establish and test the instrument to conduct depth inquiry (Creswell & Clark, 2013) regarding the motivations between textbooks versus interactive media of the



Senior High Students of La Consolacion College. Comparatively, the study analyzed the level motivation of the students when textbook and interactive media are being used in teaching Philippine History.

The study included one hundred twenty students (N=120) within the selected research locale. The sampling technique used in this study is the *descriptive comparative method*. The researchers formulated an instrument composed of thirty (30) items, (15) items for textbook and (15) items for interactive media with a four- point Likert scale which was deemed valid to compare the level of motivation of senior high school students between textbook and interactive media when used in teaching Philippine history as validated by three experts in the field. After undergoing factor analysis alpha obtained are .83, the instrument is adjudged to have internal consistency and reliability in comparing the level of motivation of senior high school students between textbook and interactive media, a paired sample t-test was performed by the researchers to determine the relationship of the variables. The comparison of the study was assessed by questionnaire with motivational statements and a separate numeric response between textbook and interactive media to get the main idea of the study. The instrument will have two parts. Part I will contain the profile of the participants. Part II will be the Questionnaire on Students Motivation. The information or items included in the questionnaire were extracted from the Philippine History subject in accordance with CMO 105 series of 2017.

Variables	Groups	N	Mean	Std. Deviation	VI
	TVL	46	3.23	0.53	М
Tracks	ACAD	40	3.29	0.33	VM
	Arts & Design	34	3.15	0.45	М
q	Male	23	3.25	0.42	VM
Sex	Female	97	3.22	0.45	М
Grade Level -	Grade 11	60	3.32	0.40	VM
	Grade 12	60	3.14	0.48	М
As a whole		120	3.23	0.45	М

Table 1.1 When Textbook was used

Results

As a whole, groupings with a total number of (N=120) with a mean of (M=3.23) and a standard deviation of (SD=0.48) showed that they are Motivated when traditional or textbook was used.

In the traditional face-to-face classroom setting, teachers observe students' expressions to determine whether or not they are attentively learning. In recent years, several studies began to carry out empirical research. (T. Lu, X. Yang 2018; Liu, 2014). Nevertheless, the bulk of formal learning still takes place in classrooms and despite several decades of computers in classrooms, the textbook is often the primary instructional resource. Millions of students continue to use textbooks that have quickly become outdated, impose rigid knowledge structures on material, and offer limited forms of interactive engagement (E. Walker, R. Wylie, A. Danielescu, J. Rodriguez, 2018; Lewin, 2009).

Variables	Groups	Ν	Mean	Std. Deviation	VI
Tracks	TVL	46	3.40	0.41	VM
	ACAD	40	3.34	0.35	VM
	Arts and Design	34	3.43	0.44	VM

Table 1.2 When Interactive media was used



Sex	Male	23	3.53	0.26	VM
	Female	97	3.36	0.42	VM
Grade Level	Grade 11	60	3.47	0.35	VM
	Grade 12	60	3.31	0.43	VM
As a whole		120	3.39	0.40	VM

The advancement of digitalization in the world plays an important part in learning which includes educational game platforms (M. Lin, H. Chen, K. Liu, 2017). Thus, the educational games can be used as an instrument for improving knowledge and influencing behaviors in students while enhancing education for development purposes in schools (T. Mercer, 2015).

Variables	Groups	Methods	М	N	SD	Т	DF	P Value	Decision	Significance @ a= 0.05
		Textbook	3.23	46	.53	X				
	TVL	Interactive Media	3.40	46	.41	-1.70	45	.097	Accept Ho	Not Significant
	1	Textbook	3.29	40	.33		\bigcirc			
Tracks	ACAD	Interactive Media	3.34	40	.35	-0.82	39	0.419	Accept Ho	Not Significant
	Arts and	Textbook	3.15	34	.45			1 1		
	Design	Interactive Media	3.43	34	.44	-2.56	33	0.015	Reject Ho	Significant
Male		Textbook	3.25	23	.42		22	0.006	Reject Ho	Significant
	Male	Interactive Media	3.53	23	.26	-3.07				
ЭСХ		Textbook	3.22	97	.45			96 0.034	Reject Ho	
	Female	Interactive Media	3.36	97	.42	-2.15	96			Significant
	1	Textbook	3.32	60	.40				2///	
Grade	Grade 11	Interactive Media	3.47	60	.35	-2.78	59	0.007	Reject Ho	Significant
Level		Textbook	3.14	60	.48	R	ll an			
	Grade 12	Interactive Media	3.31	60	.43	-1.83	59	0.073	Accept Ho	Not Significant
As a v	vhole	Textbook	3.23	120	.45	-3.03	119.0 0	0.003	Reject Ho	Significant

Table 1.3 The significant difference between textbook and interactive media

Grouping as a whole showed that there was a significant difference between textbook and interactive media. The same study was also performed to compare traditional learning and digital interactive in learning motivation. Based on the study" A Study of the Effects of Digital Learning on Learning Motivation and Learning Outcome" the following observations were concluded: 1.digital learning provides better positive effects on learning motivation than traditional teaching does, 2.digital learning revealed better positive effects on learning effect in learning outcome, and 4.learning motivation appears unusually positive effects on learning improvement in learning result. Even though many academic research studies in education claim that the use of technology can help improve student learning. Its usage is usually affected by certain barriers specifically: (a) resources, (b) institution, (c) subject culture, (d) attitudes and beliefs, (e) knowledge and skills, and (f) assessment. (K. Hew, 2014).



Conclusions

Based on the findings, there is a significant difference between textbook and interactive media when used in teaching Philippine history among senior high school students. The study indicated that interactive media really motivates students. When grouped as a whole, the respondents showed that there was a significant difference in their motivational scores between textbook and interactive media. To test the hypothesis about the comparison between the textbook and interactive media, a paired sample t-test was performed. It revealed that the male group showed a significant difference in the motivational scores for Textbook and Interactive Media. Similarly, the female group also showed that there was a significant difference in the motivational scores for Textbook and interactive media.

On the other hand, groups under Tracks were individually tested. TVL had results with no significant difference in the motivational scores between textbook and interactive media. Respectively, Academic tracks also revealed that there was no significant difference between textbook and interactive media. Interestingly, the arts and design tracks revealed that there is a significant difference in their motivational scores between textbook and interactive media. Lastly, groups under Grade 11 have a significant difference in their motivational scores. And on the other places In contrast, the Grade 12 revealed that there is no significance difference in their motivational scores between textbook and interactive media.

As a whole, the grouped respondents showed that there is a significant difference in their motivational scores for textbook and interactive media.

Implications

First, an analysis of the descriptive results implied that the Students can hone their analytical skills by analyzing media using the theories and concepts they are studying through interactive media. Students can experience worlds beyond their own, especially if the media is sharply different from their local environment.

On the opposite point of view, it show that the used of textbook the students cannot read or understand an important concepts which make students mind numingly boring in the subjects sometimes. In sum, this study implies success on the part of the K to 12 Curriculum planners and implementers whose willingness will bridge the gap between the plans and ideals of the Curriculum in implementation of the interactive media in Philippine History subject. With the infusion of the multimedia technology into the education arena, traditional educational materials can be translated into interactive electronic form through the use of multimedia authoring tools. This has allowed teachers to design and incorporate multimedia elements into the content to convey the message in a multi-sensory learning environment. The focus in education is thus moving towards using multimedia as the instructional media and a platform in teaching and learning. This multimedia educational design process will reinforce and strengthen the traditional instructional communication process and foster a number of innovative methods to communicate knowledge to the learners. In this context, there is a need to adjust the educator's approach to teaching, preparing content and delivering learning materials.

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An Assessment of Master Teacher's Competency Based on Philippine Professional Standards for Teachers (PPST)

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ABSTRACT

Every teacher demonstrates a vital role in improving the students' learning and increasing their competencies (World Bank Group, 2016). One must consider teacher quality which leads us to professionalizing the profession through a set of standards. The implementation of Philippine Professional Standards for Teachers (PPST) brought greater demands for master teachers to improve the quality of their works in application of content knowledge, collaboration with colleagues to improve teaching-learning process and others. Master Teachers are expected to possess competencies more than what Teachers I - III have. The researchers aim to identify the needs of the master teachers based on objectives stated in the Individual Performance Commitment and Review Form (IPCRF) and their duties and responsibilities based on the new standards set on PPST as embodied in the DepEd Order No. 42 s. 2017. From the survey conducted by the researchers to the 245 master teachers, results showed the various areas that require enhancement and additional training programs. Master teachers need an in-depth training on addressing different learners' needs, conducting basic and action research and a viable system of instructional supervision in giving technical assistance to teachers in different areas in the curriculum. The Division of Cavite Province continues to provide professional development program to its teachers based on their needs. These are needed not only to ensure that master teachers will be at highly proficient stage as reflected in their IPCRF but more importantly, in improving the overall quality of basic education given to the learners.

Keywords: Master Teacher, Philippine Professional Standards for Teachers, PPST, Assessment







Introduction

Over the last decade, different researches from many different countries have demonstrated the important role played by every teacher in improving the students' learning and increasing their competencies (World Bank Group, 2016). The Philippines as a member of the United Nations is committed to continuously giving a quality of education to all students as the number 4 global goal in the 2030 Sustainable Development Goals. To do this, the Department of Education marked the beginning of education reform through the implementation of the K to 12 Basic Education Program under R.A. 10533 knows as the Enhanced Basic Education Act of 2013. This marks the first implementation of Senior High School program last S.Y. 2016-2017.

Aside from changing the educational system of the Philippines to meet the demands of the time with the implementation of ASEAN integration and the presence of the 21 century learners, changing the standard for teachers is very important and should not be taken for granted. Every individual working in an educational institution needs a clear understanding of the professional standards required for the teachers and school leaders (Green, 2013). Public school teachers in the Philippines follow what stipulated in the National Competency-Based Teacher Standards (NCBTS) that defines an effective teaching and learning into different dimensions having 7 domains, 23 strands and 80 performance indicators. This has been the basis of the Department of Education in the formulation of policies in relation to hiring, promotion, and supervision and other policies that are related to teaching profession over the years.

In improving student learning, high-quality teaching workforce is the single most important factor (Tandon & Fukao, 2015. Enhancing the teacher quality of the teachers in the Philippines is another educational reform through the development of Research Center for Teacher Quality (RCTQ) having a nationally focused research in guiding evidence-informed policy. This has been realized when the Department of Education through Deped Secretary Leonor Magtolis Briones issued DepEd Order. No. 42 s. of 2017 dated August 11, 2017 known as National Adoption and Implementation of the Philippine Professional Standards for Teachers. This was issued in recognition of the importance of professional standards in the continuing professional development and advancement of teachers based on the principle of lifelong learning. The changes of the previous standards was brought about by various national and global frameworks such as the K to 12 Reform, ASEAN Integration, globalization, and the changing character of the 21st century learners. This educational reform has been started in 2013 through series of research studies. Bro. Armin Luistro, former DepEd secretary, during the approval of the national validation of standards happened on February 3, 2015 stated that he would like to see that PPST pushes forward because he believes that this will encourage good teachers to become great teachers and stay inside the classroom. The aim of PPST is to set out clear expectations of teachers along well-defined career stages of professional development from beginning to distinguished practice; engage teachers to actively embrace a continuing effort in attaining proficiency; and apply a uniform measure to assess teacher performance, identify needs, and provide support for professional development.

It is in this light that the researchers from the division of Cavite conducted the assessment of the new and tenured Master Teachers in the Province of Cavite with regard to their level of competency based on the Philippine Professional Standard for Teachers gearing towards the formulation of Teacher Professional Development Program in Cavite.

Statement of the Problem

The main objective of this study was to assess the level of proficiency of the selected master teachers in the province of Cavite based on the Philippine Professional Standard for Teachers towards the development of teacher professional development program.

Specifically, this study wanted to answer the following questions:

1. What is the level of teachers' competency in different objectives in the Individual Performance Commitment Review Form (IPCRF) based on the Philippine Professional Standards for Teachers (PPST)?



- 2. What are the significant experiences of Master Teachers in performing their duties and responsibilities during the first year of Philippine Professional Standards for Teachers (PPST)'s implementation?
- 3. Based on the results, what is the appropriate teachers' professional development program can be designed?

Paradigm of the Study

The assessment on the level of proficiency of the selected master teachers in the province of Cavite based on the Philippine Professional Standard for Teachers helped the researchers to be able to come up with recommendations to help the teachers on their professional development as they continue their work as a master teacher. The researchers determined their experiences and make it as a basis for different recommendations for their professional development.



Figure 1: Research Paradigm

Methodology and Research Design

The researchers used a descriptive type of quantitative research in assessing the level of proficiency of the selected master teachers in the province of Cavite based on the Philippine Professional Standard for Teachers towards the development of master teacher professional development program. Raosoft tool was used to compute for the sample size. There were 245 Master Teachers who answered the questionnaire from a total number of 673 Master Teachers in the Division of Cavite Province. The participants of the study for the FGD were the selected master teachers: 4 new and 4 seasoned Master Teachers. The researchers used a 5-point Likert Scale in the objectives indicated in the Individual Performance Commitment Review Form (IPCRF) of Master Teachers for them to assess their competency level in each objective. Mean was utilized to assess the level of competencies of Master Teachers. Thematic analysis was used to analyze data from FGD and describe their needs about PPST based on experiences they shared during the first year of its implementation.

Result and Discussion

Problem 1. What is the level of teachers' competency in different objectives in the IPCRF aligned with the Philippine Professional Standards for Teachers?

Statement	Weighted Mean	Verbal Interpretation
1. Modelling of effective applications of content knowledge within and across curriculum teaching areas.	4.23	High level of competence
2. Collaborating with colleagues in the conduct and application of research to enrich knowledge of content and pedagogy	3.72	Moderately high level of competence

 Table 1. Self-Assessment Level of Master Teachers' Competence



OVERALL MEAN	4.08	Moderately high level of competence
12. Applying skills in the effective communication of learner needs, progress and achievement to key stakeholders, including parents/guardians	4.25	High level of competence
11. Interpreting collaboratively monitoring and evaluation strategies of attainment data to support learner progress and achievement	4.16	Moderately high level of competence
10. Working collaboratively with colleagues to review the design, selection, organization and use of a range of effective diagnostic, formative and summative assessment strategies consistent with curriculum requirements	4.11	Moderately high level of competence
9. Advising and guiding colleagues in the selection, organization, development and use of appropriate teaching and learning resources including ICT, to address specific learning goals.	3.99	Moderately high level of competence
8. Reviewing with colleagues, teacher and learner feedback to plan, facilitate and enrich teaching practice	4.13	Moderately high level of competence
7. Developing and applying effective strategies in the planning and management of developmentally sequenced teaching and learning processes to meet curriculum requirements and varied teaching contexts.	4.13	Moderately high level of competence
6. Working with colleagues to share differentiated developmentally appropriate opportunities to address learners' difference in gender, needs, strengths, interests, and experiments	3.67	Moderately high level of competence
5. Exhibiting effective and constructive behaviour management skills by applying positive and non-discipline to ensure learning focused environment	4.24	High level of competence
4. Working with colleagues to model and share effective techniques in the management of classroom structure to engage learners, individually or in groups, in meaningful exploration, discovery and hands-on activities within a range of physical learning environments	4.13	Moderately high level of competence
3. Developing and applying effective teaching strategies to promote critical and creative thinking, as well as other higher order thinking skills	4.23	High level of competence

Table 1 shows the competency level of Master Teachers in different objectives indicated in the IPCRF. Master Teachers are competent enough in terms of applications of content of knowledge area within and across curriculum (WM=4.23). Furthermore, based on their responses, among all subjects, they can easily connect their lessons to almost all subjects especially on Values Education and Araling Panlipunan. The activities in schools in which the students will learn or develop should always include values and morality (Halstead, 1996 as cited by Thornberg and Oguz, 2013).

Master Teachers are also well-developed in the application of teaching strategies that promote critical and creative thinking (WM=4.23). However, collaborating with colleagues in conducting and applying researches to enrich knowledge in content and pedagogy obtained a weighted mean of 3.72. One hundred fifty-six (156) or 73.58% of them already conducted basic and/ or action researches. But 56 or 26.41% admitted that they do not have any researches yet. A master teacher is expected to conduct an action research every school year. The figure indicates that there is a need to capacitate other master teachers in research. As a research-based curriculum under R.A. 10533, policy and program formulation and evaluation should be based from research to be able to address the needs of the stakeholders of the institution.



There are objectives that Master Teachers need to be capacitated for them to be more competent. One is related to ICT skills. The advising and guiding colleagues in the selection to use of appropriate teaching and learning resources including ICT got a weighted mean of 3.99. One of the participants during the FGD said that because of his age, this is one of the objectives he finds himself not competent especially today that resources are seen in the Internet. All teachers need to be equipped with at least basic ICT skills. The increasingly technologyrich world raises new concerns for education while also expecting schools to become the vanguard of knowledge societies (Friedrich and Francesc, 2009). Firstly, technology can provide the necessary tools for improving the teaching and learning process, opening new opportunities and avenues. In particular, it could enhance the customization of the educational process, adapting to the particular needs of the student.

Statement about sharing practices about addressing different learners' needs or differentiated instruction obtained the lowest weighted mean of 3.67. A participant stated, "Kapag naman nagbigay ng instruction, intended na 'yun for the whole class, very time consuming kapag iba-iba pa sa dami ng students namin per class. Hindi na din makagamit ng ibang strategy. Gaya ng discovery approach, pang matalino lang naman talaga 'yan." Differentiated Instruction is going to be a very large component of any future educational direction in all schools; the school, might employ the use of differentiated instruction in a realistic expectations (Rojo, 2013).

Miller (2015) states that the high standards and expectations embodied by effective teachers that serve to positively inspire their students. Culturally responsive teachers create an atmosphere of learning that supports academic success, conveying their belief in their students' ability based upon their own reflectivity. Master teachers were aware of the importance of educational research and school support activities as well as their classroom teaching practice and teacher support activities.

Problem 2. What are the significant experiences of Master Teachers in performing their duties and responsibilities during the first year of PPST's implementation?

Confusions on the Role and Tasks of Master Teachers. Among the issues revealed from the participants, confusions on their role are the most common. In fact, these confusions can be grouped into three: Overlapping of head teachers and master teachers' tasks, too many master teachers in school and master teachers/ department head or key teachers from junior high school conducting class observation on senior high school.

"The tasks are overlapping since as Master Teachers we cannot perform what is in our KRA or objectives if there is a Head Teacher as respect to them." ("Overlapping ang trabaho, hindi namin magawa ang nasa KRA namin o objectives kapag may Head Teacher bilang respeto sa kanila." One of the crucial roles of Master Teachers in school is providing technical assistance to other teachers during post-conference after class observation. According to them, they cannot provide evidences in conducting such because in their school, head teachers are performing the duties related to classroom instructions.

In some secondary schools where there are head teachers and master teachers together, the problem of who performs what comes in. Some Master Teachers find it difficult to exercise their duties and responsibilities in order not to have conflict with the duties and responsibilities of the head teachers' which were almost the same as their tasks. This confusion has to be addressed by proper authorities to avoid overlapping of duties and confusion among them.

One participant said that in their school, there are too many master teachers. To give equal chance to all master teachers to observe classes, teachers I to III are being observed and coached by different master teachers every quarter. In result, feedbacking on the progress of teachers is weak. The teachers are also confuse on what to follow on some area because according to master teacher themselves, they have different manner of coaching based on their experience and limited knowledge and skills.

Another experience brought up by a participant from senior high school is about them being observed by teachers from junior high school which made them confuse about their duties and can bring negative feeling among them. Not all Master Teachers were from public schools. Some MTs in senior high school, about 25.78% were from Higher Education Institutions. They need more intensive trainings so as to properly perform the duties and responsibilities of a master teacher and be more oriented with the culture of public schools. Classroom management can also be a topic of their seminar. There is a big difference between the behavior of learners from junior high school and college students which they handled for the past years of their teaching career.



Inexperienced and Untrained with Proper Way of Providing Technical Assistance. Not only those who were from the Higher Education Institution needs training on proper way of providing technical assistance, other Master Teachers who were not given a chance to mentor their colleagues need this too. A participant said, *"Hindi kami makapagprovide ng MOVs kasi hindi naman kami nabibigyan ng chance makapagobserve ng klase."* Much is expected of a Master Teacher, providing technical assistance to a colleague is one of those crucial roles, however, as the saying goes "You cannot give what you do not have", many of the Master Teachers cannot provide one due to the insufficient knowledge of providing and sharing ideas they themselves do not possess.

Works Assigned Irrelevant to Duties and Responsibilities. In accomplishing means of verification needed by a master teacher to be at highly proficient stage, they realize that some of their assigned works are not that relevant to the main Key Results Area (KRA) which has higher percentage in the computation of their performance rating. A participant said, "*Nakakasagabal ang ibang trabaho na wala sa* objectives." There are a lot of activities in the schools where most of the time it is the Master Teachers whom were assigned to perform or lead. They cannot turn down the command of their school heads since they know they can perform it though. It means additional effort on the Master Teacher to perform additional tasks aside from the tons of responsibilities they have to attend to.

Not Inclined in Conducting Researches. In order to continuously improve one's craft as an educator, master teachers need to upgrade their abilities. Doing action researches could in a way be an intervention to enhance their skills as a highly proficient teacher. However, given that doing such researches entails additional time, although it is included in their duties and responsibilities, it has not been prioritized.

Problem 3. Based on the results, what is the appropriate teacher's professional development program can be designed?

Programs/ Training	Objectives	Target Activities	Persons Needed	Timeline	Output
Orientation of newly-hired master teachers	To orient newly promoted master teachers on the mandate, services, benefits, policies and work ethics	Lectures on duties and responsibilities of master teachers	Division Office personnel, School Heads	June 2019	Newly Hired MTs are familiar with the DepEd mandate, services, benefits, policies and work ethics
Revisiting PPST	ToconductseparatePPSTtrainingformaster teachers inthewholedivision	Lectures and workshops on different domains of PPST	Division Office personnel, MTs who were involved in the PPST regional training	March 2019	Obtaining a "Highly Proficient" stage are cleared to MTs in the division

 Table 2. Master Teachers' Professional Development Program



My MT, My Mentor	To ensure that Master Teachers are equipped with proper way of mentoring/ coaching to co- teachers	Lectureandworkshop on DailyLesson Log (DLL)Making*Lectureandsimulation of classobservationandpost-conferenceLectureandworkshoponapplicationsondifferent pedagogiesused in K to 12curriculumLectureandworkshoponlearners' assessment	Experienced Master Teachers National and Regional Trainers on various subjects in terms of content and pedagogy MTs who served as DLL writers in various National, Regional and Division and Division Workshops MTs who are experienced and willing to share knowledge in classroom	May 2019 (or before the start of every school year)	Master Teachers have knowledge, skills and credibility in mentoring co-teacher. Ethical considerations in conducting mentoring sessions will be learned too.
Technology- Based Instructional Materials' Training	*To provide master teachers with skills and knowledge on utilizing different software that can be used in teaching	*Master teachers who specialize in Information and Communications Technology will conduct training- workshops on MTs	ICT Master teachers	Summer 2019	MTs will not only coach co-teachers in terms of DLL making and using different pedagogies, but also on maximizing the potential if ICT
Research Training Program	To equip master teachers with proper knowledge on conducting basic and action researches	Lecture and workshop of master teachers who conducted researches Oral presentation of researches	Master teachers who have broad knowledge and skills in research	Semestral break of every school year	All MTs can produce meaningful researches not only as a requirement for PPST but as a basis for DepEd policies

		conducted by master teachers			
Differentiated	To share	Lecture from a well-	Master Teachers	Semestral	MTs can be more
Instruction	teachers' best	trained teacher in	who are trained	break 2019	equipped in using DI
	practices in terms	addressing different	and experienced		and can share this
	of using	learners' needs	on DI		knowledge and skill
	differentiated				to other teachers
	instruction thus				
	an avenue for		\sim		
	other teachers to				
	find new methods		595		¢
	to apply to their				
	classroom.				

The researchers crafted the training program shown in table 2 to address the different needs of master teachers presented based on the survey and focus group discussion.

Conclusions and Recommendations

A master teacher's compliant to the highly proficient level mandated by the Philippine Professional Standards for teachers is a manifestation of his/ her exemplary conformance to his/ her duties and responsibilities as an educator worthy of respect and emulation. Gone were the days when teachers would be contented with his/ her skills learned from his/ her bachelor's degree. Our present time educators possess the drive to improve his/ her skills to the maximum. In the advent of the Learning and Development System (L and D) strategy of the Department of Education, interventions to different needs of the Deped Personnel where carefully selected based from their assessed needs results, there's no bargain about it. The crucial subsystems of the L and D System from Needs Assessment to Program Planning; to Program Development, as well as Program Implementation were strictly adhered to, not to mention its compliance to Deped's enabling mechanisms which were in turn were backed up by the strong and valid Quality Assurance Technical Assistance Monitoring and Evaluation (QATAME).

Master Teachers in the Division of Cavite Province are skilled in areas indicated in the IPCRF. In terms of content and pedagogy, they already possess wide understanding in the application of the content and in the use of various teaching strategies. With the trainings and interventions provided by the Schools Division and schools, master teachers continuously upgrade their knowledge and skills. Thus, they were strengthened and reinforced. Master Teachers in turn can have more and deeper knowledge in terms of subject's content, pedagogical approaches, selection of instructional materials, use of ICT resources and learners' assessment than other teachers under their supervision in order for them to provide meaningful and purposeful coaching and mentoring sessions.

Moreover, according to master teachers themselves, their skills in giving technical assistance must be enhanced, having the advanced knowledge and expertise on their specific areas made them more contributory to the improvement and welfare of their other co- teachers. Their skills in the meaningful utilization of the PPST's Classroom Observation Tool, for example, will make their giving of technical assistance more valid and reliable.



Doing educational researches of a master teacher will guide him/ her in generating worthwhile interventions necessary for professional improvement. Having the experience of conducting one will prove his/ her claim of excellence without any hesitation. Considering its importance in the line- up of a master teacher's job description, it is encouraged to be among the division's priority.

Collaboration between and among teachers in the schools, far more in the division must have a space in the learning community of educators. Efforts must be exerted to generate results which were done by conscientious minds. A master teacher must have the leadership to initiate collaboration that would in turn benefit the learners under their care. The master teacher's supervision on such group of fellows could generate everyone's drive to aim for excellence in whatever area they wished to excel to.

Much is expected of a master teacher, considering their expertise in a given field, their skills in providing support to their school head is undeniably crucial. With this, they have no way but to share all they have to realize the vision and mission of the department they are working with. They have to keep abreast with the fast- changing time which made them a prime mover in every school activity. They must not forget that with every role they perform in the workplace will always have an impact to the lives of the learners entrusted to them, those learners who in turn will make a difference in the family where they belong.

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Exploratory Case Studies of Principal Leadership for Teachers' Professional Development in Central Vietnam

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ABSTRACT

Teacher professional development (TPD), which plays a significant role in better school improvement and student achievements, has been regarded as a long process from the pre-service teacher training for to-be teachers at higher education institutions and continues in the form of continuous job-embedded and collaborative learning activities. Aspects of TPD activities to favourable workplace conditions to enhance teachers' teaching knowledge, teaching skills and attitudes have been studied. This research was conducted to find out what the principals' roles and support in promoting TPD in four schools in Hong Lam province, Vietnam. The study utilises multiple-site case study design relating to principal leadership and TPD in those schools. The four key workplace conditions were identified in this study including collaboration, teacher empowerment, supervision and evaluation, and teachers' motivational strategies. Those conditions were elaborated and compared with other research findings conducted in Western countries and in other Asian ones.

Keywords: Teacher Professional Development, Workplace Conditions, Principal Leadership





Introduction

One of the key conclusions drawn from the sustainable education reform studies over the last two decades is the vital significance of teacher professional development (TPD) (Clement & Vandenberghe, 2001; Darling-Hammond & Richardson, 2009; Qian, Walker, & Yang, 2017; Timperley, 2011; Vescio, Ross, & Adams, 2008). The first formal studies on TPD focused mainly on the roles of pre-service education for to-be teachers at higher education institutions and in-service workshops/seminars in TPD (Joyce, 1988). However, TPD has been a process initiated during pre-service teacher education time and continues through job-embedded, collaborative, coherent and reflective professional activities, for the last few decades (Hallinger, Piyaman, & Viseshsiri, 2017; Kwakman, 2003; Lieberman & Pointer Mace, 2008; Opfer & Pedder, 2011; Poekert, 2012; Timperly, 2011; Webster-Wright, 2009). This led researchers' attention to understanding how workplace conditions enhance teachers' participation in productive and effective learning during their teaching careers (Geijsel, Sleegers, Stoel, & Krüger, 2009; He & Ho, 2017; Qian et al., 2017; Sleegers, Thoonen, Oort, & Peetsma, 2014; Youngs & King, 2002).

The recent studies on TPD are relevant in developing countries where the quality and scope of pre-service teacher education at higher education institutions usually lag behind Western ones (Hairon & Dimmock, 2012; Lai, Li, & Gong, 2016; Hallinger et al., 2017; Hallinger & Truong, 2016; Qian et al., 2016; Somprach, Tang & Popoonsak, 2016; Wang, 2016). In Vietnam, the Communist Party and the government have recognized that the success of education reforms depends mainly on the ability of principals and teachers to learn new and innovative knowledge, skills and attitudes on-the-job (CPV, 2012; London, 2011; Mai, 2007; Mau, 1998; Ministry of Education and Training (MOET), 2012; Nguyen, 2003; Tran, Hallinger, & Truong, 2018). In order to find out the impacts of principal leadership on their TPD, this research specifically addressed the following question, "What workplace conditions do the principals in four schools in Hong Lam province create to promote their teachers' professional development?"

This study used a qualitative case study of leadership and TPD in four schools. Our analysis aimed at identifying the favourable working conditions for teachers created by their principals to promte TPD in their schools in Hong Lam province, Viet Nam. This exploratory research also compared principal leadership and their teachers' professional learning practices identified in the Vietnamese context with those conducted in the Western literature (e.g., Geijsel et al., 2009; Leithwood, 1992; Sleegers et al., 2014; Youngs & King, 2002) and East Asian (e.g., Hairon & Dimmock, 2012; He & Ho, 2017; Liu et al., 2016; Qian et al., 2016; Somprach et al., 2016; Hallinger & Liu, 2016).

Vietnamese context and literature review

We believe that it would be impossible to understand how principals promote TPD in the society of Viet Nam without taking the influences of the social and cultural context into consideration. In this section, cultural and educational context of Vietnam will be discussed. Then, we will discuss the roles of principals in creating favourable conditions for teachers' professional learning.

Cultural context of Vietnam

The Vietnamese culture has been influenced by a blend of different indigenous ethnic groups, Chinese Confucianism and Taoism, Buddhism, Communism, and Western cultures including French and American ones (Borton, 2000; Dalton et al., 2001; Nguyen, 2013; Nguyen, 2016; Vasavakul, 2019). For example, although social relationships among Vietnamese are strongly hierarchical and collectivist as a result of Confucianism influence (Borton, 2000; Duiker, 1995; Jamieson, 1993; Hallinger & Truong, 2016; Nguyen, 2013), Communism has reshaped these traditional Confucian and Taoism values into a unique Vietnamese form (Borton, 2000; Dalton et al., 2001; Nguyen, 2016). Moreover, since Vietnam started its open-door policy and integrated into the world in 1986, Vietnamese culture has been also influenced more by Western values such as individualism and equality in social relations (Dalton et al., 2001; Nguyen, 2016; Vasavakul, 2019).



However, hierarchy continues to be a normative feature of social relations in Vietnamese society. Elders or seniors expect respect from younger people or those recognized as having lower social rank or social status (Dalton et al., 2001; Lan, 2002; Vasavakul, 2019). Respect is expressed in several forms such as listening attentively to, or not disobeying your seniors' advice and suggestions, or in the ways we address one another in communication. An obvious indication of respect involves addressing one another in communication by using various pronouns. Such pronouns reflect the order, age and status of addressers and addressees in the family, community, or society (McLeod & Dieu, 2001; Truong & Hallinger, 2017; Vasavakul, 2019). In schools, juniors, whether students, teachers or principals, typically wait for seniors to express their opinion first in order to avoid causing conflict or loss of face (Borton, 2000; Dalton et al., 2001; Jamieson, 1993; Hallinger & Truong, 2014; Tran et al., 2018; Truong & Hallinger, 2017; Truong, Hallinger, & Sanga, 2016; Vasavakul, 2019).

These values and norms are evident in the education system. Vietnamese teachers have been considered among the most important people not only in education but also in wider society (Hoang, 2002; Huynh, 2002; Hallinger & Truong, 2014; Lan, 2002; Truong, 2016). Due to the influence of Confucianism, "the teacher occupies a central place in the student's life and is revered for the wisdom he provides" (Ozmon & Craver, 2008, p. 117). Thus, the role of both teachers and principals must be interpreted in light of the context of culture and education in Viet Nam (Truong & Hallinger, 2017).

Education in Vietnam

Vietnam has carried out the *doi moi* (reform) policy since 1986 and has focused on the socio-economic development of Vietnam (Duggan, 2001; MOET, 2012). Education is always considered to play a vital part in the *doi moi* process, the current education system is, nevertheless, ill-equipped regarding the quality of curriculum, facilities, teaching methods and teaching staff (Duc, 2008; London, 2011; Tran et al., 2018; Truong & Hallinger, 2017). Addressing these challenges has been the goal of educational reforms since the beginning of the millennium (Duc, 2008; London, 2011).

In Vietnam, the MOET is responsible for organizing the functional responsibilities for education including curriculum, teacher qualifications, educational standards and testing. However, it is noted that in Vietnam, authority over many of these issues is shared with the Communist Party committees at the national, provincial, district and school levels (Hallinger & Truong, 2016; Tran et al., 2018). This shared authority division, both at the educational system and school levels, reinforces the multiple purposes of education in Vietnam: political/moral qualities (*duc*) and professional knowledge (*tai*) (Doan, 2005; London, 2011). *Duc* refers to virtues or moral qualities and incorporates values that arise from Confucianism, Taoism and Communism. *Duc* can, for example, refer to traditional cultural values such as filial piety (*hieu*), loyalty, respect for 'seniors' as well as to faithfulness to the values of the Communist Party (Dalton, Hac, Nghi, & Ong, 2001; Hallinger & Truong, 2016; Hoang, 2002; Huynh, 2002; Nguyen, 2002; Truong, Hallinger, & Sanga, 2016). A big distribution of the formal school curriculum in schools in Vietnam is allocated to political and moral education (Doan 2005; Vasavakul, 2019). *Tai* refers to knowledge, skills, professional competence or ability (Mai, 2007; Vasavakul, 2019). When a Vietnamese refers to a '*tai* teacher', it implies that the teacher masters profound professional knowledge and skillful teaching methods (Mau, 1998; Hamano, 2008; Nguyen, 2002; Tran et al., 2018).

Principal leadership and teacher professional development

The school principal has been believed to play a significant role in organizing and supporting their teachers' professional development (Clement & Vandenberghe, 2001; Cravens, 2008; Fullan, 2001; Hallinger & Liu, 2016; Sleegers et al., 2014; Leithwood, 1992; Newmann, Youngs, & King, 2002). The development of a 'professional learning community' (Harris, Jones, & Huffman, 2017; Vescio et al., 2008; Wang, 2016) or a 'learning culture' (Qian et al., 2006; Thoonen et al., 2012) requires effective leadership both from the principal and middle-level leaders (Clement & Vandenberghe, 2001; Geijsel et al., 2009; Leithwood, 1992; Leithwood & Louis, 2011; Sleegers et al., 2014). Thus, researchers who have investigated how workplace conditions influence teachers' engagement in productive professional development have highly appreciated the important



contributions of principal leadership regardless of the leadership styles principals exercise such as autocratic, transactional, transformational or instructional one (Geijsel et al., 2009; Hallinger & Liu, 2016; He & Ho, 2017; Sleegers et al., 2014; Somprach et al., 2016; Youngs & King, 2002).

Robinson and his colleagues (2008) stated that the principal's constructive participation and effective support for TPD is the most significant factor by which school leadership has most influences on student learning, improvement and achievements. This important finding motivated more researchers to look for better understandings of how school principals create favourable conditions to promote the productive TPD in their schools (Geijsel et al., 2009; Hallinger & Liu, 2016; He & Ho, 2017; Liu et al., 2016; Sleegers et al., 2014; Somprach et al., 2016; Thoonen et al., 2012; Tran et al., 2018;). The most recent studies of school practices emphasise that in-service workshops and training courses and degree upgrading programmes represent a narrow vision and ineffective forms of TPD (Borko, 2004; Denton & Hasbrouck, 2009) because those forms are inadequate to address the complexity of educational problems and issues in classroom contexts (He & Ho, 2017). Instead, researchers have argued that significant TPD should be carried out in the context of jobembedded, collaborative, and school-based activities (He & Ho, 2017; Kwakman, 2003; Little, 2012; Opfer & Pedder, 2011; Timperley, 2011; Tran et al., 2018; Webster-Wright, 2009). This social aspect of TPD (Rosenholtz, 1989) raises the importance of reshaping typical norms in the school from privacy, individualism, and tradition to collegiality, collaboration, empowerment and experimentation (Barth, 1990; Clement & Vandenberghe, 2001; Denton & Hasbrouck, 2009; Gumus, Bulut & Bellibas, 2013; Heck & Hallinger, 2014; Leithwood & Louis, 2011; Saphier, King, & D'Auria, 2006; Thoonen et al., 2012).

These conclusions confirm the vital roles of principals in providing favourable conditions for TPD in schools (Little 2012; Opfer & Pedder, 2011; Robinson, Lloyd, & Rowe, 2008; Timperley, 2011). Some leadership practices are relational supporting the development of norms promoting TPD (Barth, 1990; Geijsel et al., 2009; Qian & Walker, 2013; Saphier & King, 1985; Saphier, King, & D'Auria, 2006; Sleegers et al., 2014). Others are instrumental to develop systems, conditions and processes to provide tangible support for TPD such as collaboration, teacher empowerment, instructional supervision and various motivational strategies (Hallinger, Lee, & Ko, 2014; Leithwood, 1992; Li, Hallinger, & Ko, 2016; Liu & Hallinger, 2017; Qian, Walker, & Yang, 2017; Somprach, Tang, & Popoonsak, 2016; Thoonen et al., 2012). Those studies have proved these things to be evident in schools in East Asian countries where hierarchy is still available and teachers feel typically more reluctant to move out of their formally assigned responsibilities (Hallinger, Lee, & Ko, 2014; Liu & Hallinger, 2017; Qian & Walker, 2013; Qian et al., 2017; Somprach et al., 2016; Tran et al., 2018; Wang, 2016).

Method

The qualitative, multi-site case study design was used for this study as we emphasised on understanding through looking closely at people's words, actions and records (Denzin & Lincoln, 2017; Maykut & Morehouse, 1994). Burns (2000) also affirmed, "[C]ase study is used to gain in-depth understanding replete with meaning for the subject, focusing on process rather than outcome, on discovery rather than confirmation" (p. 460) and the evidence from multiple cases is often considered more compelling, robust, and instrumental than a single-site case study (Herriott & Firestone, 1983; Stake, 1995; Yin, 2014). Triangulation is used to confirm the validity of the processes, strenthen the credibility of our research findings (Creswell, 2014; Patton, 2015; Stake, 1995) and "reveal multiple interpretations" (Denzin & Lincoln, 2017, p.124).

Sample selection

This research took place in Hong Lam Province in the centre of Vietnam. Purposeful sampling was utilized in this study to select "information-rich cases whose study will illuminate the questions under study" (Patton, 2015, p. 169). Four schools from four educational levels in different geographical locations in Hong Lam province were considered to gain high achievements by Hong Lam Provincial Department of Education and Training. Their characteristics were as follows:

• School A: This primary school has 600 students in 15 classes from grades 1-5 in the city. Principal Mr. Hoang, leads 23 staff including a deputy principal. The School has been recognized for excellence in academic and moral achievements at the provincial level. Eighteen teachers hold three-year and four-year bachelor's degrees. The Principal has 15 years of experience as a principal including twelve years at this school. Before being appointed to this post, he had been a teacher for three years and deputy-principal for seven years.



- School B: This lower-secondary school located in a rural area serving 950 students in grades 6-9. It has been recognized for excellence in academic achievement. There are 52 staff members including the principal and deputy principal. The principal, Ms. Le, has 10 years of experience as a principal. Thirty of the teaching staff have three-year or four year training degrees.
- School C: This high school for gifted pupils (grades 10-12) has 600 pupils from all parts of the province. Approximately 100 percent of the 12th grade pupils pass the university entrance examination every year to get admission to different universities in Vietnam. There are around 50 staff members including the principal, Mr. Nguyen, and deputy-principals. There are 40 teachers of whom one holds a PhD degree, seven hold M.A degrees, the rest have four-year training diplomas (bachelors' degrees).
- School D: A College of Vocational Training serving about 1,800 students in five departments. The College is led by a rector, Mr. Cao and two deputy rectors. There are 120 teaching staff. According to the documents, the College has received many rewards from the provincial and MOET levels.

Data Collection

The research data came from semi-structured interviews with the four principals, open-ended questionnaires from teachers, direct observation of professional development activities and related policy documents (Patton, 2015). Semi-structured interviews (Patton, 2015) were conducted with each of the four principals. These aimed at gaining information about the principals' perspectives and their leadership practices, their roles and support as well as and techers' professional learning activities in their schools. Teachers' perspectives were collected from an open-ended questionnaire that focused on teachers' needs and motivations as well as professional development practices used in their schools. A total of 177 of 235 questionnaires distributed at teachers' meetings were returned (75% response rate). In order to gain further details and check on what had been reported in the interviews and questionnaires, we also observed teacher professional development activities in the four schools over a period of two and half months. These observations offered multiple perspectives and enabled the use of triangulation as a means of checking the credibility of different perceptions (Creswell, 2014; Denzin & Lincoln, 2017; Patton, 2015).

Data Analysis

In this multi-site case study, we employed 'within-case analysis' followed by 'cross-case analysis' (Miles & Huberman, 1994; Patton, 2015). Within-case analysis involved developing detailed write-ups for each school according to the foci of the research. Analytical procedures first involved coding data based on sources. Next, we organised the data by arranging it into a case record (or database) for each school (Patton, 2015).

In the cross-case analysis, we tried "to build a general explanation that fit each of the individual cases, even though the cases vary in their details" (Yin, 2014, p. 112). During the process of data synthesis, we used open coding, axial coding and constant comparative method (Glaser & Strauss, 1965; Patton, 2015). We generated categories as we searched for patterns, commonalities and contradictions among four schools (Patton, 2015). These categories recognized the importance of taking account of both personal and contextual influences in shaping leadership practices and workplace conditions (e.g., see Belchetz & Leithwood, 2017; Clarke & O'Donoghue, 2016; Hallinger, 2016; Tran et al., 2018).

Results and Discussion

This study data confirmed the use of both external and school-based TPD activities. External activities included degree upgrading courses offered by the MOET and universities, seminars, summer workshops, short courses, and district/provincial/national good teacher title competitions. School-based activities included class observations with feedback, observations of other teachers, weekly faculty meetings, mentoring, coaching, and self-study.

Cross-school analysis of TPD activities revealed that the four schools relied mainly on 'external activities'. However, the teachers generally found these external learning activities less directly relevant, of limited use, costly, and time-consuming. In contrast, in-school learning opportunities were generally perceived as more relevant, useful, and related to perceived needs of the teachers.

These data strongly supported the proposition that workplace conditions played a critical role in promoting the extent and nature of teacher participation in TPD activities (e.g., Clement & Vandenberghe, 2001; Hallinger &



Liu, 2016; Rosenholtz, 1989; Sleegers et al., 2014). Data analysis yielded four workplace conditions to support TPD, created by the principals, including collaboration, teacher empowerment, supervision and evaluation and teachers' motivational strategies.

In this study we examined practices used by four Vietnamese principals to support the professional learning of teachers. Although our perspective on leadership and teacher learning was initially shaped by Western literature, the use of a qualitative research methodology allowed for an exploratory rather than a confirmatory approach to world knowledge building. Thus, we inductively identified and described leadership practices within four broad leadership strategies. Our cross-school synthesis paid particular attention to how these practices reflected the educational and cultural context of Vietnam. In the next section, we will briefly discuss workplace conditions, created by the principals, to support TPD, interpret the findings, mention the limitations, and highlight implications for research and practice.

Collaboration

In TPD, collaboration means that teachers work together, building and sustaining relationships with colleagues, promoting improvement in instructional capacity by providing feedback, fostering reflection on teaching skills and developing new teaching techniques (Denton & Hasbrouck, 2009; Gumus et al., 2013; He & Ho, 2017; Heck & Hallinger, 2014). Collaboration was evident in all the four studied schools. It was clearly reflected in a number of strategies including observations, school or department-based seminars, mentoring, coaching and weekly professional meetings. The teachers were provided with opportunities to discuss with their colleagues professional issues for improvement and development in teachers' learning and teaching. Almost all the teachers said that they felt challenged by their colleagues. Teaching methods and problems were discussed frequently in meetings and seminars. Colleagues offered help in difficult situations. Staff said they could learn from one another during the meetings and seminars. Clement and Vandenberghe (2001, p. 45) argued this was effective when they said, "[C]ollegiality challenges teachers professionally because colleagues function for one another as a source of feedback, support and alternative ideas". The teachers in these schools said they were eager to help one another to implement new learning or put new ideas into practice. This was similar to the pattern of successful teachers in Spillane's (1999) longitudinal study and in Heck and Hallinger's (2014) study.

Teachers' professional identity can also be developed through experiences of solidarity and collective work (Tonna & Shanks, 2017), a process through which teachers are made aware of how they can contribute to the growth of each other's professionalism, as in Tonna and Shank's study. Most interactions between the principals and their teachers were dominated by the creation of learning opportunities. Collaboration and collegiality were evident in informal activities including the exchange of ideas or stories between the principal and teachers during the breaks. These stories had the character of non-committal small talk. Many teachers and their principals discussed the weather, politics, shows on T.V, or their families. Often these stories grew to a sharing of ideas with regard to the school. These interactions are similar to those described in Heck and Hallinger's (2014), Rosenholz's (1989) and Spillane's (1999) study. They were seen more frequently in schools D, C, B, and A. In school A, Mr. Hoang participated actively and frequently in all strategies with his teachers and teachers valued this cooperation. The teachers also appreciated the fact that they could easily discuss educational issues, especially issues related closely to the educational reform with their principal. In general, they did not find it difficult to ask for help. According to the teachers, they could ask Mr. Hoang for feedback about their pedagogical activities and their interactions with their pupils. Sometimes, Mr. Hoang commented spontaneously on teachers' work. Mr. Nguyen from School C and Ms. Le from School B did similar things, but to a lesser extent. These two principals mainly discussed teaching methods with their teachers. This was because there were more subjects in their schools. Because of the college size, Mr. Cao did not meet all teachers as often as the other principals. He collaborated more with heads of departments. However, beside meeting with his teachers in seminars and meetings, he tried to talk with his teachers informally by going down to the department hall, meeting with them at social activities, organized by the department or the college, and playing sports with them. All the four principals tried to encourage and promote interactions and cooperation mainly in professional development between teachers. The principals used reward and encouragement systems and regulations to supervise teachers.

Collaboration in the four schools was based on trusting, caring, and open relationships. This cannot develop if such relationships do not exist in the schools (Fullan, 2001, 2010; Hallinger & Truong, 2014; Harris & Jones, 2017; Harris & Ovando, 1992; Tran et al., 2018). Nevertheless, the 'right relationship' (Borton, 2000), originated from Confucianism (Ozmon & Craver, 2008; Tran et al., 2018; Truong, 2013), and 'the dominant



political role of the Communist party' (Duiker, 1995; Vasavakul, 2019) in the Vietnamese society appeared to have created a 'Vietnamized collaboration'. Age, status, experience, and even gender in the Vietnamese culture created an 'invisible' distance between the teachers and their principals and between teachers themselves and prevented them from having Western collaboration. As a result, the collaboration in the four schools is not like that in Western schools, as in the literature reviewed.

Teacher empowerment

Overall, the teachers were empowered to some extent in the four schools. Teacher empowerment was evident in strategies such as seminars, weekly professional meetings, mentoring, peer coaching, and self-learning. Teachers were occasionally provided with an opportunity to be involved in decision-making and leadership roles. According to Melenyzer (1990, cited in Blasé & Blasé, 1994) when teachers assume responsibility for an involvement in the decision-making process, true empowerment leads to increased professionalism.

Teachers in school D had more chance to take a leadership role in their professional development than their counterparts in the other three schools. For example, teachers could state their opinions on the topic selection process for seminars at the college level. They were free to choose materials for their students. They played a leadership role when organizing seminars at the department level, in mentoring and in coaching. Mr. Cao stated, *"In my views, we created general policies. Teachers, based on those, take an active and creative role in generating new ideas and good ways to implement them. Sharing good ideas among teachers and reflection on their expertise are encouraged and appreciated"* (DDI). Teachers of this college could also choose the areas for self-learning they thought they needed to improve on. Teachers in Rosenholtz's study (1989) were also provided with similar opportunities. To a lesser extent, the teachers of the other schools experienced similar opportunities. They could take active roles in providing guidance and support to novice teachers as well as others. However, the principals were close to them and they participated in almost all areas of TPD. Thus, opportunities for empowerment for teachers were limited.

Thus, Vietnamese teachers generally experienced some kind and extent of shared leadership and autonomy in their learning in the four schools. It may not have been as much autonomy, self-responsibility, and self-direction as their counterparts in Western schools might expect. Rather, teacher empowerment in the four schools, as Sergiovani (2013) suggests, focuses less on individual rights, discretion, and freedom and more on the commitments, obligations and duties that teachers feel toward each other, their students and the school. We argue that teacher empowerment in these Vietnamese schools was also affected by the hierarchical structure (Borton, 2000; Tran et al., 2018; Hallinger & Truong, 2016; Vasavakul, 2019) that there is no evidence of in the Western literature.

Supervision and evaluation

Supervision and evaluation of teachers' professional growth were evident in all schools. The management board, mainly the principal, was in charge of this task. It was considered an integral part of teachers' professional development. The role of principals in the promotion of effective professional development is reinforced by Hallinger and Liu (2016) when they suggest that instructional supervision, often provided by the principal, helps teachers improve their instructional performance, motivate their professional development and carry out their curricular development as well.

Evaluation of teachers was frequently carried out in all four schools. At the end of a semester and an academic year, teachers were assessed. Assessment was based on similar procedures and criteria in each of the schools. Teachers were assessed in terms of 'duc' and 'tai' (Doan, 2005; Mau, 1998; Hamano, 2008; Nguyen, 2002; Nguyen, 2014). Teachers' 'duc' often included: their patriotism, socialism and beliefs in the leadership of the Party and government, their obedience toward laws, and regulations issued by the State and MOET, their enthusiastic participation in social activities organized by the school, their collaboration in work, their behaviours toward other colleagues and their students, and the respect and prestige gained from other staff and students. Teachers' 'tai' consisted of assessed observed lessons, results of scientific studies, writings for the Bulletin of Science and presentations, and contributions to seminars. Based on such criteria, teachers wrote their own self-evaluation reports and graded themselves as A (good), B (credit), C (pass), or D (not completing the assigned tasks). Then, in department meetings (in schools B, C, and D) and the whole staff meeting (school A), teachers took turns to present their own reports to get feedback from their colleagues and the principal (in schools A, B, C) or heads of departments (in school D). At these meetings, constructive criticism was



encouraged by all the principals. At the end of the meeting, teachers were graded by other teachers anonymously. In school D, after that meeting, lists of teachers' grades were sent to the College's Education Council for final assessment and approval.

The principals and most teachers in the four schools considered this kind of evaluation necessary and effective for recognition of their achievements and improvement. Simultaneously, this provided teachers with a chance to look back at their strengths and weaknesses and the opportunity to develop their sense of responsibility. These seemed to be similar to Little's (2012) views when (s)he suggests that evaluation is necessary for teachers' continued professional development and that good and thorough self-evaluation should include seeking the perceptions of other knowledgeable colleagues. Other authors also noted the significance and positive effects of evaluation on teachers' enhancement and development (See, for example, Little, 2012; Somprach et al., 2016).

In-class supervision, as termed by Glanz and Neville (1997), to assess in-service activities was evident in the four schools. It included observations, following discussions, and assessment of teachers' lessons during the academic year, especially on special occasions. What some teachers had learnt from workshops and seminars was shared with other teachers. Then, the new learning was applied to classes. Observations and discussions were encouraged. This cycle was considered by principals and teachers as crucial to the success of in-service training workshops and improvement of teachers. Follow-up activities depended on observations in the school. Ms. Le and especially Mr. Hoang frequently took part in observations and discussions. Mr. Nguyen had some involvement and Mr. Cao rarely did. Follow-up activities were carried out more frequently in schools A and B where the principals were more involved. According to Botello and Glasman (1999), where there are more follow-up activities, there is more likelihood of successful in-service training courses and workshops.

In conclusion, supervision in all the four schools appeared to focus less on instructions and more on assessment and it is not totally similar to the kind of supervision the literature favoured. However, supervision in these schools worked to help and support teachers as they adapted, adopted, and refined the instructional practices they were trying to implement in their classrooms. The primary purpose of supervision was illustrated in Mr. Cao's views, "We supervise for good reasons. We want schools to be better, teachers to grow, and students to have academically and developmentally sound learning experiences; and we believe that supervision serves these and other worthy ends. But all the benefits that we seek can be obtained more easily and in enhanced ways in the natural course of events as teachers and students learn together in the school." (DDI).

According to Hairon and Dimmock (2012), the type of instructional supervision that is most likely to produce productive professional development is that of collaboration. The supervision in the four schools is 'Vietnamized'. As a result of this, supervision in these schools is not like the one employed in Western schools.

Motivational strategies

The teachers in the four schools were motivated to continuously update their knowledge and professionalism. The motivation system in these schools often included policies, regulations, rewards, recognition, and punishment. It appeared that the four principals used different motivational strategies to promote teachers' professional development. Those could be similar to McGregor's (1970) 'X' and 'Y' theory, or Maslow's (1943) hierarchy of needs.

In order to apply suitable motivational strategies to individual teachers with different needs, the principals were reported to have an understanding of their teachers. Generally, the principals understood almost all of their teachers' family situations. Family situations in Vietnam appear to have a great impact upon teaching and learning. For example, Vietnamese female teachers have to be involved in work and family as well. Because of an influence of Confucianism, they have to take responsibility for household chores. Thus, they have less time for self-learning than their male counterparts. The principals acknowledged the differences in teachers' needs, age, gender, and financial conditions when employing strategies of professional development. This was reflected in compulsory and optional strategies applied in schools. For example, observations, scientific studies, and self-learning were compulsory and degree upgrading was optional. All teachers valued these understandings. There were no indications of unfair considerations or teachers' dissatisfied attitudes toward their principal's acknowledgments of different needs in the interview or questionnaires. School reports and my observations confirmed these. These principals' actions seem to be consistent with what Law and Glover (2000) and He and Ho (2016) suggest. They say that the use of suitable motivational strategies based on individuals' needs and work characteristics is very important to stimulate teachers to improve (Kwakman, 2003). Darling-Hammond



& Richardson (2009) and Fullan (2010) also argue that teachers' needs must be taken into consideration when employing teachers' professional development strategies.

Policies of rewards and punishment were used to implement and promote TPD in all four schools. Teachers with high achievements or good progress including successful completion of degree upgrading, attaining 'good teacher' titles, good grades for scientific studies, and so on, were recognized, appreciated, and awarded with money. These teachers were publicly appreciated and praised. According to Mr. Hoang, when a teacher completes a 'degree upgrading' course, at the staff's meeting, that graduate is awarded with "a small gift as a kind of reward and recognition of his/her endeavour. Although the reward is small because of the difficulty in finance, it is great encouragement for that teacher in front of his/her colleagues" (ALI). Teachers with 'good teacher' titles were recognized and awarded amounts of money in schools B, C, and D. Mr. Cao said that in his college, teachers with high achievements and grades were received more money than others on some occasions such as Vietnamese Teachers' Day and Lunar Year (Tet) Holidays. Teachers in schools A, B, and C were also awarded with money if their students passed the 'good student' competition at DETS or PETS levels. Thus, it is a fact that teachers normally wanted to teach the more able students. However, the principals tried to assign teachers to teach different classes. Teachers in the four schools with their scientific studies recognized at DETS or PETS levels were awarded with money as well. The higher the level was the more money and respect the teachers gained. These kinds of rewards seemed to make teachers competitive and they are not always encouraged in Western schools. London (2011) argues from the left that the sense of competitiveness partly prevents teachers from collaborating with their colleagues. Although the principals and teachers did not mention the sense of competitiveness in the interviews and questionnaires (they might not have realized or they would not have wanted to say about), we, from a Western perspective, thought I saw evidence of the sense of competitiveness amongst teachers in the four schools.

One kind of motivation that is not acknowledged in the Western literature is 'reward of spirit'. This term was repeated in the principals' interviews and teachers' questionnaires. They said that the reward of a Vietnamese teacher can be good and well-behaved students and that he/she is loved and respected by their colleagues and students' parents. This is very important for teachers. Thus, the principals said that they often reminded their teachers about the honour of the teaching profession in the Vietnamese society. Most teachers wrote that their professional development was mainly important to them because they could help improve their 'dear students' learning and achievements. This could result from an influence of Confucianism that teachers should be good and hold high respect in society (Ozmon & Craver, 2008; Hallinger & Truong, 2014; Huynh, 2002; Tran et al., 2018; Truong & Hallinger, 2017).

Teachers in the four schools said their principals placed high expectations on them to improve their learning and teaching. Mr. Hoang noted the 'school A pride' for teachers to strive more in learning and teaching. However, the principals realized that their teachers' salaries were not sufficient for their living, therefore their teachers could not put as much effort into teaching and learning as they might desire. Thus, rewards from the schools were often money. All four schools said that they lacked the finance for better encouragement and worthy rewards for their high achieving teachers. All four principals, living and working in a hierarchical society, were seen to use 'X' theory in some cases to motivate their teachers.

According to Borton (2000), Nguyen (2016), Tran et al. (2018), and Truong (2013), in Vietnamese culture, achievement goals are often described as being for the benefit of the group (e.g. family or organization or state). Mai (2007) also suggests that collective cultures emphasize achievement more in terms of benefits to the ingroup. According to him/her, people in these cultures are often motivated to study because of a stronger emphasis placed by their family, organization, and society on education as a means to achieve wealth and status. Moreover, the sense of 'losing face' could motivate people to learn. The habit '*a small food given formally to a person in front of the whole villagers is considered more precious than a basket of food given informally to him/her in the house*' still holds true in organizations including schools. The four principals seemed to understand these cultural aspects embedded in their teachers as Vietnamese in order to motivate their teachers more effectively. For example, the teachers were often praised and rewarded publicly.

Limitations of the Study

Like other case study research, this study involved a limited and specific population of participants. Therefore, the findings of this research cannot be generalized to the larger population of Vietnamese schools and educators (Yin, 2014). In addition, it is possible that the information and perspectives shared with the researchers conveyed



'overly positive' assessments of modal practices in the schools. While this is a commonly noted threat to validity in qualitative research (Burns, 2000; Creswell, 2014), features of Vietnamese culture and Vietnamese context could have exaggerated this tendency in our study. More specifically, Vietnamese people behave in accordance with the norm of 'good things are revealed and bad things should be covered up (*tôt khoe xâu che*). Although our use of data triangulation, especially observations, sought to address this threat to validity, we acknowledge this as a limitation of the study.

Conclusion

The principal leadership strategies identified aimed at supporting TPD identified in this study echo themes that have been well documented in Western societies. Nonetheless, it was obvious that the implementation of these strategies in typical schools in Viet Nam had a flavor which reflected the influence of the political, cultural, and socio-economic context of Vietnam. The findings offer support to the ideas of Belchetz and Leithwood (2007), Harris and Jones (2019) or Hallinger and Heck (2010) that a similar successful leadership practices are found in different countries. At the same time, they reinforce Bajunid's (1996) idea that these similar practices (e.g., empowerment, collaboration, supervision) may take on different patterns in different countries. This was evident in the current study and needs more qualitative studies that elaborate on and connect leadership and TPD practices to the contextual features of different countries (Belchetz & Leithwood, 2007; Clarke & O'Donoghue, 2016).

In this research article, we have periodically compared our findings in the four schools in Hong Lam province, Viet Nam to the studies of leadership and TPD conducted in Western societies. Indeed, as noted above, we concluded that differences in these practices could be traced to differences in the educational and socio-cultural context. However, it should be noted that in recent years an increasingly rich literature centering on this topic has emerged in East Asia with studies from Hong Kong (Hallinger & Liu, 2016; He & Ho, 2017), China (Qian et al., 2016; Qian & Walker, 2013; Hallinger & Liu, 2016), Thailand (Hallinger et al., 2017; Somprach et al., 2016), and Singapore (Hairon & Dimmock, 2012). Future studies should assume the challenge of examining commonalities and differences in these processes within East Asian societies. This will not only offer policymakers, educational authorities and practitioners in the region insights into further development directions, but also contribute towards building a more diverse global literature in educational leadership and management as a whole (Bajunid, 1996; Clarke & O'Donoghue, 2017).

We focused explicitly on describing TPD practices and interpreting them through the political-cultural-social lens of the Vietnamese context. Nonetheless, if we compare Vietnam with findings reported from China and Singapore, the schools in Hong Lam province, Vietnam in particular and perhaps in Vietnam in general, lag these other East Asian countries on both the scope and quality of leadership and TPD. This would suggest that there remains gaps for further studies in the field in Vietnam.

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Teacher Professional Development Activities in a Higher Education Institution in Ha Tinh Province in a Time of Educational Reforms

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ABSTRACT

Teacher professional development (TPD) has been reconceptualized as a process that started from pre-service teacher training at tertiary education institutions and continues in the form of job-embedded and collaborative professional learning activities for teachers at their schools. Many researchers have provided a wide range of professional learning activities employed in several Western and Asian societies. This case study used a variety of qualitative data sources to identify typical activities used to promote TPD in one university in Central Vietnam in a time of current educational reforms. Ten activities of TPD are utilised in this study including both externally-offered and school-based ones. These activities are specifically described and also linked to the typical features of the socio-economic, cultural and political context of Vietnam.

Keywords: Teacher Professional Development, Typical Activities





Introduction

For the last few dacades, four important trends have emerged in the global literature on teacher professional development (TPD). First, the role of teachers' professional learning is as equally important as pre-service teacher training at colleges/universities of education (Lieberman & Pointer Mace, 2008). Second, the traditional view of TPD including 'in-service workshops' and certificate/degree upgrading programs has moved to a more school-based learning activities (Harris & Jones, 2019; Opfer & Pedder, 2011; Webster-Wright, 2009). Third, TPD is taking place in learning communities (Little, 2012). Finally, TPD has a central place in sustainable educational reactivities (Fullan, 2011; Lieberman & Pointer Mace, 2008). The education system of Vietnam has currently been under several educational reforms for enhanced capacities of providing high quality human resources for the development of Vietnam.

The current study was conducted in these developments in Ha Tinh University in Vietnam where scholarly contributions to the world literature in teacher training or TPD have been very little. The research question is *"What are the activities of teacher professional development implemented in Ha Tinh University in Central Vietnam in a time of educational reforms?"* This paper presents a case study qualitative design. Qualitative data were collected from the University Rector using the interview with the Rector, open-ended questionnaires for teachers, direct observation and document analysis. The paper aims to enrich the world literature on TPD and could recommend several solutions for educational policymakers, leaders, and teachers in Ha Tinh province in particular and in Higher Education of Vietnam in general.

Literature review

The emphasis in research and teacher education has shifted towards teacher professional development that is multi-faceted and job-embedded for the last few decades (Harris & Jones, 2019; Vescio, Ross, & Adams, 2008; Webster-Wright, 2009). Thus, today TPD is regarded as a continuos process that begins during pre-service teacher training at colleges/universities of education and continutes throughout the teachers' teaching job (Kwakman, 2003; Little, 2012). Research on TPD has concluded that it is an ongoing process by which teachers get new subject knowledge, responsibilities, and teaching method skills (Li et al., 2016; Opfer & Pedder, 2011). Opfer and Pedder (2011) and others have tried to outline professional learning activities of teachers. Two common types of TPD have various activities that occur inside the school such as school-based workshops or observations of other teachers as well as those outside the school such as workshops or degree/certificate upgrading programs or conferences. Researchers have also mentionted individual basis type such as self-learning or online learning or in a group or community setting such as teacher research group or team observation. TPD can also be voluntary participation of teachers or by external forces such as the principal, district or provincial or MOET educational authorities whether it is mandatory or voluntary.

This different perspective towards TPD has led researchers or teachers to explore opportunities for their TPD at workplace (Hallinger & Liu, 2016; Timperley, 2011). The TPD can take place via formal ways such as professional development programs, teacher research groups, observations of other teachers, mentoring and coaching (Little, 2012; Timperley, 2011; Webster-Wright, 2009). Teachers also learn through informal interactions in collaborative shared assessment and informal communications (Little, 2012; Somprach, Tang & Popoonsak, 2016). Workplace norms also shape teacher collaboration in schools (Rosenholtz, 1989; Tran, Hallinger & Truong, 2018). Researchers from several East Asian countries such as China, Hong Kong, Singapore or Thailand have also mentionted socio-cultural aspects to understand teachers' attitudes towards collaboration and TPD. Confucian norms, which are evident in most East Asian nations, also make teachers believe in needs of learning. For example, in Vietnamese culture, a good or perfect person is not only professionally competent but also displays moral qualities that are in harmony with Confucian norms (Dalton et al., 2005; Qian & Walker, 2013; Wang, 2016). This creates the identity of the 'good teacher' which seeks continued learning and development both with respect to moral qualities (*Duc*) and subject knowledge and teaching skills (*Tai*) (Nguyen, 2003).

Method

A case study research design (Yin, 2014) was used in this study as a means of finding out different activities of TPD in Ha Tinh university in Central Vietnam (hereinafter referred to as the University). In this section of the paper we are describing the sample selection, the methods of data collection, and data analysis for this study.



Sample

We employed purposeful sampling designed to yield "information-rich cases whose study will illuminate the questions under study" (Patton, 2015, p. 169). This University in Ha Tinh province was identified to be considered to be effective by the provincial authorities in terms of achievements and success. We selected the rector for the interview and delivered the questionnaires to lecturers.

Having collected many awards over a long period of time, Ha Tinh University has maintained a continuing focus on improving the quality of its teaching staff. It has 360 staff (210 teaching staff) and 8000 students. According to the Rector, TPD is considered an integral part of the University's success. Rector Nguyen said that he and his lecturers have invested time and effort in the promotion of TPD, especially in this era of educational reforms.

Data Collection

Data for this paper came from semi-structured interviews with the Rector, open-ended questionnaires completed by lecturers, and our direct observation of professional development activities at the University. Semi-structured interview (Patton, 2015) was conducted aiming at gaining information about the rector's perspectives and his leadership practices, and professional learning activities for his lecturers.

Lecturers' perspectives were solicited through an open-ended questionnaire that focused on lecturers' needs and motivations as well as professional development practices used in their school. Two hundred questionnaires distributed to lecturers at faculty meetings which 165 were returned (82.5% response rate). In order to gain further details and check on what had been reported in the interview and questionnaires, we also observed TPD activities for three months. These observations offered multiple perspectives and improved triangulation as a means of checking the credibility of different perceptions (Patton, 2015).

Data Analysis

I employed 'within-case analysis' (Patton, 2015; Yin, 2014) in this case study, which involved developing detailed write-ups for the University. Analytical procedures first involved coding data based on the different data sources. After completing the case record we reanalyzed the data focusing specifically on TPD activities employed in the University. We used open coding and axial coding in order to generate the list of activities ultilised there.

Results

We could identify ten professional development activities for TPD at the University which were divided into two groups: external and university-based activities.

External Professional Development Activities

Degree Upgrading was considered as an effective and important strategy by Thay Nguyen the Rector. Lecturers also wrote of the significance of having M.A or Ph.D degrees at the tertiary education level. According to the University report, 80 percent of teaching staff hold M.A and Ph.D degrees (102 Ph.D holders). Twenty-three lecturers are doing PhD courses (five at overseas universities) and 40 lecturers are doing M.A courses.

Many lecturers have spent two or three years full-time or part-time doing courses in universities in Ha Noi capital or Hue city. They faced many difficulties, especially financial matters, in order to gain M.A or Ph.D qualifications. One female teacher recalled her hard experiences in her questionnaire:

Being a Vietnamese woman studying and staying far from my husband and my one year old daughter for two years' time was quite hard. Beside the difficulty in finance, missing my husband and especially my little daughter was a very tough. I cried many nights because I missed them too much and I wanted to cancel my course. But my husband and family's encouragement, together with my self-responsibility, helped me have more strength. I remember once, ... when I came back to our room in the staff's hostel from Ha Noi to visit my husband and daughter, standing at the window and looking through it, I saw my husband and my daughter sleeping on the floor with a lot of toys around.



Tears started to come out on my face with a mixture of emotions. I knew that without a woman's hand in a family, everything seemed to be disordered and messy. I felt guilty for that. However, at last I completed my M.A course with a distinction grade. Im doing a PhD now and just only the time devoted to research and traveling to Hanoi and finance, not like the time when doing an MA. (T8)

Thay Nguyen the Rector explained that he has tried to encourage lecturers to upgrade their degrees and he has supported lecturers in spiritual and material ways. He said that lecturers who wanted to upgrade their degrees had to register, and those who were younger would have priority. Sometimes, too many lecturers wanted to study at the same time and there were not enough lecturers to replace them. Then, they had to take turns to study. Thay Nguyen the Rector elaborated:

Lecturers in departments with few PhD holders will have priority. We try to help those lecturers to have a chance to upgrade their degrees by meeting all policies stipulated by the State, MOET and the province leaders. They still maintain the same salaries and have travel costs and extra support from the province.

Lecturers said that one of the most difficult problems they face when studying is finance. Despite receiving support from the University and the province, lecturers needed a great deal of money to complete an M.A or Ph.D course at a university in Vietnam. Many lecturers really wanted to upgrade their qualifications, but they could not overcome the obstacles of finance and family commitments. One lecturer wrote, "I intended to do PhD course, but I have not saved enough money for the course. Beside support from the University and the province, in order to complete the course, I need an amount of 200 million VND" (T14).

Lecturers said they appreciated the spiritual and financial support received from the Rector. Statements such as "the Rector always encourages us to upgrade our degrees" (T28), "He appreciates lecturers' efforts in overcoming difficulties to study" (T24), "Our Rector tries to create mechanisms and conditions for us to take long-term courses" (T125), can be found in lecturers' questionnaires. The own experience of the first author as a lecturer at the University confirmed these comments.

Conferences, workshops, and seminars. Thay Nguyen the Rector explained that this was a University, so professionalism-related issues were mainly and directly dependent on MOET. Thus, the University lecturers often participated in conferences, workshops, and seminars, organized by MOET or other universities. Workshops and conferences were regularly organized for lecturers of different subjects. Thay Nguyen the Rector said that in recent years, the topics for those workshops centred on the educational reform including changes in education objectives, textbook replacement, and teaching method reforms. Thus, he has paid more attention to these. At the moment, the General Education Reform Project is in charge of these issues and one teacher of each subject is invited to attend the workshops. The Rector explained that he paid attention to these workshops and assigned lecturers to attend. After the workshop, those lecturers are responsible for sharing the knowledge with other lecturers in their education departments in professional meetings or seminars. One lecturer of English wrote, "Our Dean presented many new issues related to educational reform. These presentations have helped us learn more about the details of the reforms. We can use some of that knowledge to teach our students, especially the communicative methods" (T19).

Visits to other universities. According to the Rector, because this University is a new one, there are not many leading and experienced lecturers at the University level, especially "Professors/Associate professors or Ph.D holders with much experience in teaching and research". Thus, many visits to other universities have been organized. Several lecturers wrote about such visits. They said they could learn many things from their colleagues after their visits. Many lecturers included specific statements such as "getting some textbooks or curriculum or research experience from those Universities as wonderful references for us"(T32), "...learn[ing] how to organize group-learning, research groups and clubs for students" (T69), or "...their department library management and use is very effective and we should learn" (T57). Lecturers generally appreciated their Rector's support in the use of this strategy as it helped them learn more from their counterparts in other universities.

School-Based Professional Learning Activities

Classroom Observations of Other Lecturers were used in this University. Each lecturer was encouraged to observe other lecturers' teaching. Observation notes were written in a notebook. According to the Rector, observation was particularly promoted and encouraged on several special occasions such as 'International



Women's Day', 'Vietnamese Lecturers' Day', and so on. After observation, discussions were encouraged to share experiences.

Nevertheless, according to lecturers, this was not very useful because there were too many specific subjects even in one department and many sub-subjects in one subject. Thus, observers could not discuss the content of observed lessons in detail. Instead, they often focussed on the teaching method. These reasons could partly explain why "observation is not very popular or effective in this University". Most questionnaires mentioned of the ineffectiveness of observation in this University. It appeared that observation was not paid enough attention by both the management board and lecturers. One female lecturer with 20 years of teaching wrote, "In general, we can learn from one another after observations. However, because we often teach different subjects or even sub-subjects, so we could learn less about the subject knowledge, but more about teaching methodology" (T10). Similar statements were found in other lecturers' questionnaires. We observed eight lessons from four departments (two from each department). Our field-notes confirmed lecturers' comments. "Lecturers seemed to discuss a lot about teaching methodology including timing, teacher's behaviours toward his/her students, classroom management, and so on… Only lecturers of the same subject voiced opinions on the content of the lesson and the subject knowledge" (Field-notes, 7 March, 2019).

As mentioned above, there are many subjects and sub-subjects in a department. Take the education department as an example. There are the following main subjects: Maths, Physics, Chemistry, Informatics, and so on. Each subject is also divided into many sub-subjects. Sub-subjects of Maths can be advanced algebra, geometry, and many others. Each lecturer is in charge of one or two sub-subjects as their major specialization. Thus, it is difficult to contribute their ideas in the discussion phase (after observation) in terms of subject knowledge. Learning from observations seems to be better in the English department. Although each lecturer is assigned to teach several subjects such as phonetics, methodology, English or American literature and culture, grammar, and four skills, each teacher can have opinions on the subjects that are not his/her majors. This is because a lecturer of English is trained in those subjects at university. "I am not very good at every sub-subject, like the ones who are specialized in it. However, I can have some ideas on observed lessons such as intonation, structures, methods, and so on" (T43).

Weekly Professional Meetings. Regulations dictate that departmental professional meetings occur once every two weeks. "This strategy is often associated with seminars at the department level". According to Thay Nguyen the Rector, at the beginning of the academic year, lecturers of each department decided topics for seminars at the department level. Each lecturer could register to host a topic. A list of topics was then scheduled. A copy was sent to the management board and other departments in case anyone else wanted to participate. Each lecturer also got a copy to prepare ideas for the seminars. Many lecturers said they found this strategy useful because they could choose a topic, prepare and open their presentation for discussion, and get feedback from other colleagues.

During professional meetings, lecturers, who had recently learnt something new and interesting from workshops organized by MOET, other conferences or universities, or even from materials they have read, can host presentations. Several lecturers doubted the effectiveness of those meetings. One teacher wrote about these kinds of meetings, "Overall, I find professional meetings useful and necessary for lecturers. However, some topics are not very realistic and interesting because they are not prepared well and some lecturers do not actively and enthusiastically participate in discussions. They are sometimes formal" (T6).

A coaching-mentoring strategy was used in this University. When a novice lecturer started working at this University, s/he was assigned an experienced lecturer as a mentor. The novice could ask the experienced lecturer about lesson plans, academic and teaching issues, or about University and department procedures and practices. I observed that lecturers appeared ready and eager to exchange experiences and share their knowledge with one another when they had an opportunity.

Not only novice lecturers but also mentors expressed advantages of the mentoring process. Experienced and older lecturers' writings reflected this. One lecturer with 24 years' teaching noted, "When guiding and supporting young lecturers, I can also improve. I have had to find more materials to read and I have learnt several good ideas from novice lecturers as well" (T83). Coaching between lecturers was encouraged, according to Thay Nguyen the Rector. He said, "Exchanging ideas on professional issues between lecturers of different teaching experience is always encouraged... Interactions occurring during professional meetings, observations,



seminars indicate this view". Most lecturers indicated the advantages of coaching. My observation revealed evidence of the exchanging of ideas between lecturers of this University.

Seminars at the University level and Speeches from Famous People. Seminars were organized every six weeks, according to Thay Nguyen. Based on the curriculum, the objectives of the academic year, requirements of MOET, representatives from the departments and the management board discussed and selected the topics for seminars. According to him, after topics are settled, a copy of the list of topics was sent to all staff to give feedback, and prepare their ideas or presentations for the seminars. "We assign several experienced lecturers for presentations. Other lecturers are encouraged to have their presentations at the seminars. As usual, ten days before the seminar, lecturers have to send their proposals and estimated time for their presentations to the seminars, famous and prestigious scientists or professors from other universities are often invited to give speeches. Lecturers are encouraged to attend such speeches and to prepare questions to ask those speakers.

Lecturers generally acknowledged the significance of these seminars. A lecturer wrote,

At the University of education, I find these seminars necessary for my job. Seminars provide us with a good chance to exchange viewpoints and experiences. I appreciate the series of seminars closely connected to the changes of the educational reforms and research publications...It is interesting to have opportunities to hear famous scientists' speeches. (T7)

According to Thay Nguyen, departments would invite scientists to give speeches to the department staff. The University was in charge of paying the costs of those visits. The Rector's support in this strategy was recognized by many lecturers.

Scientific studies or research paper publications or experience initiatives. Thay Nguyen the Rector and lecturers all considered these very important at the University level. According to the Rector, because the stipulated teaching hours for University lecturers are eight teaching hours per week, more time should be spent on research and self-learning. Thay Nguyen described the procedures followed for lecturers' scientific studies. First, at the beginning of the academic year (15 August), lecturers registered the topic of their research or registered level such as the Ministry of Education and Training (MOET), the provincial or the university (PETS) or the department level. Then, a list of topics was set up and sent to the University's Education Council. After that, departmental lecturers presented their research proposals at a departmental meeting. Comments and questions around the studies were raised for teacher researchers to answer. Next, in April of the following year, a research presentation seminar is organized at each department. Other departments were noticed of these meetings and asked to attend. An invitation was also sent to the Education Council staff to come. Lecturers took turns to present their studies. Presenters had to answer other participants' questions and get feedback from them. At the end of that meeting, based on set criteria, the department staff graded others' studies by anonymous votes. The grades were named department, University, PETS, and MOET levels. Then, lecturers with suggested grades from the University level had to hand in their research to the University's Education Council for assessment and grading. Suggested grades at the PETS and MOET level were sent to PETS and MOET for assessment and grading. Thay Nguyen said that he wanted lecturers to pay more attention to this strategy. Monetary rewards were given to lecturers with high grades. Lecturers were encouraged to publish papers on ISI-Scopus - indexed journals or ISSN journals. Those lecturers who have their research papers published on ISI-Scopus indexed journals will be awarded about 15000 000 VND (equivalent to 700 USD), the same as the salary of 28 year service lecturer.

In the Rector's view, this activity was a "form of self-learning that stimulated the lecturers' continued interest in the job. Because all lecturers take on these projects annually and share their results with each other, and their research results can be publised on important journals, there is collective improvement for the school" (Thay Nguyen the Rector).

Self-learning. Beside the above shared professional development strategies, Thay Nguyen the Rector and lecturers acknowledged the importance of lecturers' self-learning. Thay Nguyen maintained he tried to make his lecturers more aware of the significance of self-learning and more responsible for that activity. He emphasized, "*Lecturers should be aware of the contributions of self-learning and life-long learning to their work in this University. They must set an example of life-long learning to their students who are future lecturers.*



I myself set a good example to my lecturers by taking part in professional development activities regularly including English language and other skills".

According to him, in order to supervise and check the effectiveness of this activity, several solutions were applied. First was checking the lecturers' 'accumulative professional knowledge notebook' as in other schools. Another solution was to encourage lecturers to write articles for journals as a sign of self-learning. Thay Nguyen noted that lecturers were made aware that the number of their writings contributed to their final grades. He explained, "*These procedures are applied in order to make lecturers become more responsible for self-learning. They are a requirement and provide motivation for lecturers to continually read and learn... These are operating rather well and have brought certain results for lecturers' improvement*".

Although all lecturers were conscious of the importance of self-study, many lecturers found it difficult to find time. The female lecturers, in particular, were busy caring for their families. Thus, the extent of self-study among lecturers seemed highly variable.

'Good teacher' titles were also targeted by most lecturers as in other schools. There were different 'good teacher' levels in this University: the department (Lao dong tien tien), the University (Chien sy thi dua co so), and the Provincial/MOET level (Chien sy thi dua cap Tinh/Bo). At the end of the semester and the academic year, at department meetings, lecturers, based on registered titles and each teacher's achievements including scientific studies, voted anonymously for other lecturers' titles. Then, the list of lecturers' titles was sent to the University's Education Council to approve.

Discussion

This study identified and explained different activities employed in Ha Tinh University to support TPD. More specifically, different activities were favoured by lecturers based on their gender, competency, age, experience, and family situations. Thus, Thay Nguyen the Rector was quite explicit about the need to utilise different activities to motivate different lecturers take part in TPD (Qian & Walker, 2013).

Overall, university-based strategies were considered as not sifnificant as external learning activities for lecturers the University. Lecturers engaged in these activities to achieve qualifications and improve their professional identity and the self. 'Vietnamese thinking' cultural aspect equates a higher qualification, or 'title' with visible evidence of its holder's capacities and reputation. Thus, the qualification becomes a tangible source of prestige in the eyes of the school, community, and teaching job. Fullan (2011) mentioned the benefits of 'positive pressure' as a positive sign of motivation for TPD and change towards improvements. Lecturers felt stressed but eager to upgrade their degrees for their better future as a compulsory requirement for their teaching job at the University levels.

University-based activities appeared to focus more squarely on shaping realistic knowledge, teaching skills and research skills for lecturers. Whether mandatory or voluntary, the Rector/Department leaders or lecturers initiated, activities such as Classroom Observations, Coaching-Mentoring, Weekly Professional Meetings, Seminars, Yearly scientific studies research paper publications or experienced initiatives and Self-learning offered chances for TPD activities. From the Rector's perspective, these things ensured that all lecturers would take part in continued TPD that benefitted both the University and the lecturers themselves. Thus, all lecturers participated in university-based activities. However, within the university-wide expectations, lecturers had the choice of where to focus their professional learning. For example, during their early years, lecturers might spend their learning time to Degree Upgrading, Classroom Observation, and Coaching-Mentoring activities. Conversely, more experienced lecturers might spend more time to leading staff Seminars, Mentoring new lecturers, Good Teacher Title, Yearly scientific studies/research paper publications or experienced initiatives, and Self-learning. This different way to adult learning reflects a mature and effective approach to adult professional learning and improvements.

There were 'indigenous' aspects that characterized TPD in this University. For example, researchers have identified 'teacher research groups' as a common feature of TPD in Chinese schools (Paine & Fang, 2006), We would conclude that 'Good Teacher' Title, Weekly Professional Meetings, and Yearly scientific studies/research paper publications or experienced initiatives are 'indigenous practices' there. These TPD activities are 'indigenous' in the manner that they seem to reflect the cultural-social-political context of Vietnamese society. For example, as noted earlier, the honour that Vietnamese culture clearly motivates



lecturers to try for higher qualifications and 'titles'. In addition, we also argue that the manner in which Classroom Observations, university-Based Seminars, and Self-learning are utilised in this University are speacial.

The collective and group-focussed Vietnamese culture with interdependence between members, personal caring is more significant than independence (Vasavakul, 2019). These include the mandatory Workshops, University-Based Seminars, and Weekly Professional Meetings. These activities as well as Coaching-Mentoring and Classroom Observations, provided opportunities for those lecturers to share and learn values and norms of the school professional community to improve their knowledge, attitudes, responsibilities and skills.

It is of course true that these 'indigenous practices' emerge from the socio-cultural-political context of the Vietnamese society is not to suggest that everything works in perfect harmony. As noted in the presentation of results, lecturers who were willingly to choose to register for 'Good Teacher' Title or Degree Upgrading reported feeling considerably stressed and in some cases, fear of failure for losing face. Even while lecturers acknowledged the significance of Classroom Observations, some also reported feeling fearful and anxious. Thus, our characterization of these activities as 'indigenous' does not mean to suggest that they are all necessarily 'effective'. Moreover, not all activities identified in this study will necessarily transfer to other countries whose socio-cultural values and norms are different.

Conclusion

This study was conducted both to fill the gap in knowledge of TPD of a Higher Education institution in the Vietnamese context and add to a growing world literature. The study confirms earlier descriptive efforts to outline TPD in Western (e.g., Vescio et al., 2008) and East Asian (Paine & Fang, 2006; Qian & Walker, 2013) countries.

The need for lecturers to grow, adapt and develop new knowledge, research skills and teaching method skills over their job period has reinforced the importance of TPD as a University achievement strategy. This study tried to provide typical teacher learning activities in higher education institution in Vietnam.

Limitations of the Study

The limitation of this paper comes from its design as a single site case study. While this allowed the authors to study one particular case in depth, the results cannot be generalized to other higher education institutions in Vietnam. Future research will need to affirm the extent to which Ha Tinh University is typical within the Vietnamese higher education system, by examining the extent to which the scope and intensity of lecturer participation in TPD found in this University describes other institutions more generally. In addition, future research should examine a larger sample for better generalization.

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Motivating Factors and Common Grammatical Errors In Written English Composition

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ABSTRACT

This study utilized exploratory sequential mixed methods. On the qualitative phase of the study, the themes generated after analyzing the data gathered through interviews of five (5) Senior High School students on the factors that motivate them to learn English were self-improvement, peer influence and personal interest. For the quantitative phase, after administering survey questionnaires to 108 Senior High School students the results revealed that the level of motivating factors of in learning English were found to be evident in three areas namely: self-improvement with 3.12; peer influence with 2.75 and personal interest with 2.95 weighted means respectively. Out of the thirteen (13) The most committed grammatical error is tenses of verb with a weighted mean of 2.98 interpreted as evidently observed. On the other hand, the least committed error was on the use of adverb/adjective with a weighted mean of 0.52 categorized as slightly observed. An over-all mean of 1.41 verbally interpreted as slightly observed level of commission of grammatical errors in written English composition. It was found out that the commission of common grammatical errors has significant correlation with self-improvement and personal interest. However, it was also found out that peer influence has no significant correlation with commission of grammatical errors. As an offshoot of the study, an Enrichment Activities in English with ten (10) different strategies was developed to help for the Senior High School students to be more motivated in learning English and lessen the commission of common grammatical errors of students in written English composition.

Keywords: Motivating Factors, Common Grammatical Errors, Self-improvement, Peer Influence, Personal Improvement





Rationale

By virtue of the DepEd Order No. 36 s. 2006 which discusses the Implementing Rules and Regulations on Executive Order No. 210 also known as "Establishing the Policy to Strengthen the Use of the English Language as a Medium of Instruction in the Educational System", English turns out to be the medium of instruction in teaching subjects in basic education from Kindergarten to Senior High School. The Kto12 Curriculum which was enacted last 2013 through Republic Act 10533 is now on its full implementation. The Philippine Government through the Congress passed a law which tasks Department of Education to manage a transitional educational improvement in the educational system by adding two years program in the educational program which is Grade 11 and Grade 12 and advance with the international standards in the field of education. Since the Senior High School students are new to the educational arena, it is interesting to conduct study on the teaching and learning process which concerns them as the main beneficiary of research.

After four years of learning English in Junior High School, the students had experienced several writing activities which diagnosed and corrected their grammatical error in English. Although their experience is long, it is important to determine if the students in Senior High School improve in their skills in written English composition especially in their use of correct grammar.

Cabuyao Integrated National High School got a rating of 40.65% in National Achievement Test in English for the School Year 2014-2015. From its previous English NAT result which is 49.92, there is tremendous decrease of 9.27% in its Mean Percentage Score (MPS). Based on the accumulated results of the MPS of Senior High School in their Periodical Tests for the School Year 2018-2019, it has 60.56% which is below the passing rate of 70%. The said statistics shows that the quality of English competency and proficiency of the Grade 10 students is deteriorating. Intervention programs relative to the least learned competencies should be developed and implemented to strengthen and increase the MPS of NAT English. Due to this, the researcher got motivated to make a deeper study about the factors that motivate the Senior High School students in learning the English language as much as the motivating factors registered relationship with the students' commission of grammatical errors in written English composition, development of an enrichment activities was proposed to remedy the problem i.e., improve their performance in English and enhance their writing skills.

Statement of the Problem

The study aimed to identify, describe, and analyze the motivating factors that influence students in committing common grammatical errors in written English composition.

Specifically, this study sought answers to the following questions

- 1. What are the factors that motivate the students in learning English?
- 2. What is the level of motivation of Senior High School students relative to:

(The generated themes from the qualitative phase of the study were used as the sub-variables in this problem)

- 2.1 self-improvement
- 2.2 peer influence
- 2.3 personal interest?
- 3. What are the levels of common grammatical errors of the Senior High School students in terms of: 3.1 capitalization



3.2 spelling

3.3 formation of plural and singular nouns

3.4 wrong Choice of Words

- 3.5 punctuation
- 3.6 use of Pronoun
- 3.7 use of Preposition
- 3.8 use of Conjunction
- 3.9 use of Adjective/adverb
- 3.10 use of Article
- 3.11 tenses of Verbs
- 3.12 subject-verb agreement

3.13 missing word/s?

- 4. Is there significant correlation between the level of motivating factors and the level of common grammatical errors committed by Senior High School students in written English composition?
- 5. Based on the findings, what enrichment activities in English can be developed to motivate the Senior High School students to improve written English composition and lessen the commission of common grammatical errors?

Hypothesis

There is no significant correlation between the level of motivating factors and the level of common grammatical errors committed by Senior High School students in written English composition.

Theoretical Framework

This study was anchored on the theoretical perspectives of Brown (2008) about grammatical errors which according to him is the noticeable deviation from the acceptable and presented grammar of a native speaking reflecting the inter language competence of the learner. With the same thought, Corder (2011) underscores the importance of identifying learners' errors at three different levels. According to him, it significant to note that errors reveal the teachers how well the learners have improved and consequently, what remains for him/her to learn. Secondly, they provide researchers with evidence of the process through which language is learned and acquired, what strategies and procedures the learner is using in his acquisition of the language. Thirdly, they are important to the learner since errors committed can be used as bases for developing outputs which be helpful for students to acquire optimum learning. Thus, teachers benefit because errors provide feedback as to the teachers' effectiveness in teaching using varieties of teaching techniques and strategies. Furthermore, Sercombe (2010) explains that error analyses serves three purposes. Firstly, to find out the level of language proficiency the learner has reached. Secondly, to obtain information about common difficulties in language learning and thirdly, to find out how people learn a language.



On the local context, Pulido (2011) identifies the 13 common grammatical errors committed by the students in written composition namely: capitalization, spelling, formation of noun/s, wrong choice of words, punctuation, use of pronoun, use of preposition, use of conjunction, use of adjective/adverb, use of article, tenses of verbs, subject-verb agreement and missing words. The result of the study recommended intervention activities that can be performed by the teachers to improve the written English composition skills of the students. Flores (2014) confirms the same result and stressed that although English is the second language in the Philippines, Filipino students commit grammatical errors when tasked to come up with written English composition. The result of the study shows the most common errors are tenses of the verb, subject verb agreement and use of punctuation.

Methodology

The study utilized the mixed methods of research. Specifically, it applied the exploratory sequential mixed methods. In order to generate the theory about the factors that motivate the students to learn English, interviews were conducted. The results and findings were analyzed to derive theories that were used in devising a tool that measured the level of students' motivating factors in learning English. After the level of motivation has been assessed, the commission of common grammatical errors was gauged by allowing the Senior High School students to write a written English composition in the subject English for Academic Purposes. The written outputs were checked by an expert to determine the common grammatical errors were correlated. An enrichment activities was developed to improve the motivation of students in learning English and to lessen the commission of grammatical errors of the students in written English compositions.

Creswell (2014) explains that in this approach, the researcher first begins with a qualitative research phase and explores the views of participants. The data are then analyzed, and the information used to build in a second, quantitative phase. The qualitative phase may be used to build an instrument to use in the follow-up quantitative phase, or to specify variables that need to go into a follow-up quantitative study. Particular challenges to this design reside in focusing in on the appropriate qualitative findings to use and the sample selection for both phases of research.

Respondents of the Study

During the qualitative phase of the study, five (5) Grade 12 students of the Cabuyao Integrated National High School were the participants in the conduct of the interview and the respondents to determine the level of motivating factors of the students in learning English.

For the qualitative phase of the study, the respondents were the Senior High School Students of Cabuyao Integrated National High School. After using the Slovins formula in computing for the simple random sampling out of the total population of Grade 12 students which is one hundred forty-eight (148) a total of one hundred eight (108) Senior High School students became the respondents of the study.

Sampling Technique

For the initial phase of the study, interviews were conducted to five (5) Senior High School students. The study utilized purposive sampling technique wherein there are three criteria set to be chosen as one of the participants of the study which are 1) a regular Grade 12 Senior High School student in Cabuyao Integrated National High



School; 2) taking up English for Academic Purposes as one of his/her subjects; 3) has the ability to express himself/herself well in oral English communication.

Research Procedure

A. Qualitative Phase – Pre-data gathering stage

For the interview, the researcher developed an interview guide with the purpose of generating theories about the factors that motivate students in learning English. After that, an English expert and the researcher's advisers checked the interview guide and was validated through a try-out interview. There were five (5) participants of the interviews conducted. The said participants were purposively selected, those Grade 12 students of Cabuyao Integrated National High School who will pass the criteria set (a regular Grade 12 Senior High School student in Cabuyao Integrated National High School; taking up English for Academic Purposes as one of his/her subjects; and has the ability to express himself/herself well in oral English communication) were interviewed. Since the interviewees were students written consent from their parents were secured. Upon approval, they were notified on the scheduled time and place for the interview.

B. Quantitative Phase - Pre-data gathering Stage

During the quantitative phase of the research when the survey was conducted, a formal letter asking permission and endorsement to conduct the study was requested from the City Schools Division Superintendent of Cabuyao. Upon approval of the endorsement, a formal letter of communication and coordination with the district supervisor of District 3 was done to secure that ethics on conducting a study was strictly followed. After that, the researcher copy furnished the principal of Cabuyao Integrated National High School of the said communication. Follow-ups were made with the principal on scheduling of dates for administration and collation of questionnaires.

C. Qualitative Phase – Data Gathering Stage

During the interview, the researcher tried to create a cozy atmosphere by putting at ease the interviewee. The objective of the interview was explained well and the issues of confidentiality and anonymity were also discussed reiterating that all interviewees were coded. During the interview, the researcher made the interviewee express his/her ideas freely but made topical trajectories in the conversation that may stray from the guide when she felt appropriate.

D. Quantitative Phase -Data Gathering Stage

The researcher administered the questionnaires to the respondents to determine the factors that motivate students to learn English. It was made sure that the administration of the survey is in good condition free from internal and external threats of validity while the respondents are answering the survey questionnaires. With proper coordination with the teacher/s of Senior High School students in English for Academic Purposes, the researcher asked them to instruct students to write an essay about their most unforgettable experience in life. The teachers were assured that the data gathered would be confidential.

E. Qualitative Phase Post Data Gathering Stage

For the interview, the responses of the participants were transcribed. Afterwards, coding technique was utilized and the themes for interpretation of the responses were drawn. The theory generated from the case study approach of qualitative research was the basis of drafting a survey questionnaire which was the tool to determine the motivating factors that affect students to learn in English.

F. Quantitative Phase Post Data Gathering Stage



After all the questionnaires about the motivating factors that motivate students in learning English had been answered, they were retrieved. The data gathered from the responses of students were statistically treated, interpreted and analyzed. The results of the checked written English composition through an essay of the students were averaged using Mean formula and the result was correlated with the data attained in the survey questionnaire.

Results and Discussion

Generated Themes Relative to Motivating Factors

Self-improvement

According to Participants A, B, C, D and E they were motivated to learn English because it improved their speaking ability and helps communicate well with others. On the same thought, Participants A, B and C were motivated to learn English because they believe it will prepare them for future career and it will be an advantage in looking for job. Relatively, Improved English proficiency was the result of the motivation to learn English according to Participants C and E. In addition, Participant A and C mentioned they were able to enhance her vocabularies and helped them to join in co-curricular activities. The said motivation also helped Participants B and D improved their grades and academic performance in other English subjects.

Peer Influence

Participant A, B, C, D, and E shared that they were motivated to learn English because their classmates and friends influenced them to speak English and they gained sense of belongingness because of it. Correlatively, Participants B, D and were exposed on the use of social media and watching TV programs and films which use English as a medium of communication which became a factor that motivate them to learn English more. Furthermore, Participants A and D agreed that since their friends have a good study habit it helped them to be motivated on learning the second language.

Personal Interest

All the participants agreed that they all like to read books and different articles in the internet like wattpad. Participants A and C also shared that they like to write short stories, essays and articles that's why they are interested to learn English better. While, Participants B and E were motivated to learn English because they were fond of watching vlogs, short film, TV series and reality shows which used English.

Table 1 presents the level of motivating factors of senior high school students in learning English relative to self-improvement.

Table 1. Level of SHS Students' Self Improvement Relative to English Language Learning					
Indicative Statement	Mean	SD	Interpretation		
As a student, I am motivated to learn English because					

As a student, I am motivated to learn English because			
1. it improves my academic performance in class by	3.16	0.71	Evident
getting high grades in English subjects.			
2. it enhances my speaking skills by communicating my	3.30	0.74	Evident
ideas well with others.			
3. it improves my vocabularies and makes me easily	3.33	0.68	Evident
understand other subjects which use English as			
edium of instruction.			



4. it	4. it enhances my self-esteem/confidence since			0.78	Evident
	being good in English is considered by othe	ers to be a			
n	neasure of intelligence.				
5. it helps me excel in co-curricular activities like			3.78	0.89	Highly Evident
journalism, English competitions etc.					
Over-all mean : Interpretation			8.12	Evident	
Leger	nd: 3.51-4.00 – Highly Evident 1.1	1.51 - 2.50 - Slightly Evident			
	2.51-3.50 – Evident 1.0	00 – 1.50 – Not E	Evident		

The figures revealed that indicator 5 got the highest mean classified as *highly evident* which implies that the students were motivated to learn English because it helps them excel in co-curricular activities like journalism, English competitions, among others (M=3.78, SD = 0.89).

All other indicators are categorized as *evident* which means that they are contributing factors that motivate the students to learn English. There was an improvement in the students' vocabularies and they easily understood other subjects which use English as medium of instruction (M=3.33, SD = 0.68) verbally interpreted as *evident*. The speaking skills of the students were improved by communicating their ideas well with others (M=3.30, SD = 0.74) classified as *evident*. The students were also motivated to learn English because it improves their academic performance in class by getting high grades in English subjects (M=3.16, SD = 0.71). Though statement 4 got the lowest rating, it still *evident* that students were motivated to learn English because their self-esteem/ confidence is enhanced since being good in English is considered by others to be a measure of intelligence (M=3.03, SD = 0.78).

In general, the over-all mean of 3.12 which is interpreted as evident implies that the Senior High School students are motivated to learn the English language because of self-improvement. This connotes that because they want to improve themselves they become more motivated to be better in English.

This finding is congruent with the study of Andrews and Erwin (2011) when they concluded that students were motivated to learn when they are given recognition that led them to be diligent in studying. It is implied in the study that learners do better due to intrinsic motivation of improving themselves. Correlatively, Armstrong (2012), in his study, found out that students are motivated innately when they are given rewards as a compliment to high performing in class. Thus, they try to improve their academic performance to be recognized.

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Fahla 2 I aval of SHS Studants'	Poor Influence Relative	to English	Ionguaga	loorning
Lable 2. Level of SHS Students		to English	Language	licai ming
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	8	000	, ,
Indicative Statement	Mean	SD	Interpretation
As a student, I am motivated to learn English because			
1. my friends/classmates speak well in English during class recitation in English subjects.	2.79	0.74	Evident
2. my friends/classmates communicate with me using the	2.26	0.81	Slightly
English language			Evident
3. my friends/classmates love to listen and using English	2.94	0.86	Evident
songs.			
4. my friends/classmates are exposed in social media which	2.95	0.73	Evident
use English as medium of instruction.			
5. my friends/classmates have a good study habit that helps	2.81	0.72	Evident
us to improve in English.			
Over-all mean : Interpretation	2.75	Eviden	ıt
Legend: 3.51-4.00 – Highly Evident 1.51 – 2.50 –	- Slightly E	vident	
2.51-3.50 – Evident 1.00 – 1.50 -	– Not Evide	ent	

The results show that among the indicative statements of the level of motivating factors of Senior High School students in learning English relative to peer influence, students were motivated to learn English because their friends/classmates are exposed in social media which use English as medium of instruction having the highest weighted mean of 2.95 and standard deviation of 0.73 categorized as *evident*. The students were motivated to learn English because their friends/classmates love to listen and sing English songs subjects (M=2.94, SD = 0.86) categorized as *evident*. The good study habit of the students' friends/classmates helps them improve in English (M=2.81, SD = 0.72) verbally interpreted as *evident*. Another *evident* factor why peer influence



motivated students to learn English was their friends/classmates speak well in English during class recitation during English class (M=2.79, SD = 0.74). However, it was *slightly evident* that students communicate with their friends/classmates using English language (M=2. 26, SD = 0.81).

As a whole, the over-all mean of 2.75 which is categorized as evident implies that peer influence as a factor that motivate the Senior High School students in learning English was evidently manifested and contributed much to the motivation of students to learn well the English language.

This result is supported by the study of Kerrin and Oliver (2012) which stressed that peer influence plays a very important role in the learning process. The students are motivated to learn if their classmates and friends motivate them to study through a friendly competition. On the study of Johnson (2009), he affirmed that peer is a factor that influence the students to perform well in their studies.

Indicative Statement	Mean	SD	Interpretation				
As a student, I am motivated to learn English because							
1. I like reading English books or E-books like wattpads.	2.69	0.95	Evident				
2. I like writing English essays, poems and short stories.	2.44	0.93	Slightly Evident				
3. I like watching English movies/ films.	3.48	0.63	Evident				
4. I like watching English TV series/ reality shows.	3.07	0.82	Evident				
5. I like watching vlogs/videos in the internet which use	3.04	0.86	Evident				
English language.							
Over-all mean : Interpretation	2.95	Evident					
Legend: 3.51-4.00 – Highly Evident 1.51 – 2.50 – Slightly E	Evident	-	11				
2.51-3.50 – Evident 1.00 – 1.50 – Not Evide	ent						

Table 3. Level of SHS Students' Personal Interest Relative to English Language Learning

The figures show that students were motivated to learn English because they like to watch English movies as their personal interest having the highest weighted mean of 3.48 and a standard deviation of 0.63 interpreted as *evident*. The students are *evidently* motivated to learn English because they like to watch English TV series/ reality shows (M=3.07, SD = 0.82). Watching vlogs/videos in the internet which use English language was another *evident* factor why students are motivated to learn English (M=3.04, SD = 0.86). It was also *evident* that students were motivated to learn English because they like to read books or E-books like wattpads (M=2.69, SD = 0.95). However, writing essays, poems and short stories is *slightly evident* as a factor that motivates to learn English to Senior High School students, the lowest weighted obtained mean with 2.44 and a standard deviation of 0.93.

In general, the over-all weighted mean of 2.95 which is interpreted as evident implies that personal interest is a factor that motivated the student respondents to learn English. When students are interested in reading and writing they tend to be motivated to learn better in English.

In accordance with this finding, Lee (2011) concluded in his study that personal interest of the students in learning a language helps the students improve their performance. The level of engagement of students has a direct correlation with their academic performance.

Table 5 as shown on the next page, it was *evidently observed* that Senior High School students committed errors in writing proper tenses of the verb when writing English composition (M=2.98, SD = 1.71). The errors committed by the Senior High School students in writing composition were *moderately observed* in the types of common errors such as the use of appropriate punctuation marks (M=1.78, SD = 1.46), correct capitalization (M=1.75, SD = 1.10), use of preposition (M=1.54, SD = 1.56), use of pronoun (M=1.58, SD = 1.34), wrong choice of word/s (M=1.49, SD = 1.15), subject-verb agreement (M=1.48, SD = 1.08), plural/singular noun (M=1.35, SD = 1.10), conjunction (M=1.21, SD = 1.00), and spelling (M=1.02, SD = 1.44).

However, it was slightly observed that the students commit grammatical errors on missing words (M=0.98, SD = 1.05), use of article (M=1.02, SD = 1.44), and correct adjective/adverb (M=0.52, SD = 0.87).



in written English Composition					
Indicators	Mean	SD	Rank	Interpretation	
1. Capitalization	1.75	1.10	3	Moderately Observed	
2. Spelling	1.02	1.44	11	Moderately Observed	
3. Plural/Singular Noun	1.35	1.10	9	Moderately Observed	
4. Wrong choice of word/s	1.49	1.15	7	Moderately Observed	
5. Punctuation	1.78	1.46	2	Moderately Observed	
6. Use of pronoun	1.50	1.34	6	Moderately Observed	
7. Use of Preposition	1.54	1.56	4	Moderately Observed	
8. Conjunction	1.21	1.00	10	Moderately Observed	
9. Adjective/Adverb	0.52	0.87	5	Slightly Observed	
10. Article	0.74	0.91	13	Slightly Observed	
11. Tenses of verb	2.98	1.71	1	Evidently Observed	
12. S-V- agreement	1.48	1.08	8	Moderately Observed	
13. Missing Words	0.98	1.05	12	Slightly Observed	
Over-all mean : Interpretation	1.41	Modera	tely Obse	erved	
Legend: No. of Occurrence	C	Code		Range Interpretation	
0		1		0 Not observed	
1-2		2	0	.01-1.00 Slightly Observed	
3-4		3		.01-2.00 Moderately Observed	
5-6		4	2.01-3.00 Evidently		
7-8		5	3	.01-4.00 Highly Observed	

 Table 4. Level of Commission of Common Grammatical Errors

 in Written English Composition

In general, the Senior High School students got an over-all mean of 1.41 verbally interpreted as moderately observed. This means that in terms of written English composition the students were observed to commit slight errors in grammar.

The result of the study is in contrast with Pulido (2011), when he found out that there is high level of commission of errors of college students in their written English composition. On the other hand, Flores (2014) revealed in her study that although English is the second language in the Philippines, Filipino students commit grammatical errors when tasked to come up with written English composition. The result of the study shows the most common errors are tenses of the verb, subject verb agreement and use of punctuation.

	Self-improvement		Peer Influence		Personal Interest	
Types of Common Grammatical Errors	r- value	p-value	r- value	p-value	r- value	p-value
1. Capitalization	-0.137	0.038*	-0.041	0.676	-0.023	0.004*
2. Spelling	-0.081	0.006*	0.126	0.195	0.022	0.824
3. Plural/Singular Noun	0.097	0.316	0.194	0.045*	0.133	0.245
4. Wrong choice of word/s	0.086	0.378	0.103	0.290	0.066	0.497
5. Punctuation	-0.013	0.002*	-0.068	0.485	-0.028	0.013*
6. Use of pronoun	0.0096	0.325	0.146	0.132	0.125	0.197
7. Use of Preposition	-0.038	0.044*	-0.168	0.083	-0.066	0.048*
8. Conjunction	-0.079	0.004*	0.003	0.977	-0.130	0.029*
9. Adjective/Adverb	0.180	0.062	0.067	0.489	-0.199	0.039*
10. Article	0.080	0.412	-0.169	0.081	-0.045	0.015*
11. Tenses of verb	-0.002	0.032*	-0.020	0.834	-0.089	0.036*
12. S-V- agreement	0.125	0.196	0.122	0.209	0.063	0.516
13. Missing Words	0.166	0.086	-0.005	0.957	-0.067	0.023*
Note: p<0.05 is statistically signific						

Table 5. Correlation of SHS Students' Level of Common Grammatical Errors

			10				
to	Solf_ii	mnroveme	nt Poor	Influence	and	Porconal	Interest
ω	BCII-II	mprovenie	m, i cui	immuchec	anu	I CI SUllai	muutsi



Out of the thirteen (13) common grammatical errors, six (6) types of common grammatical errors were found to have significant correlation (inversely). The said results mean that since the obtained r is negative (inverse) when self-improvement increases the level of commission of errors in capitalization, spelling, punctuation, use of preposition, use of conjunction and tenses of verb decreases.

Relative to the result, David (2010) stressed that motivating factors have significant effect on the learning acquisition of the learners. It is found that the students are affected by different factors that led them to either attain high performance or low performance in learning English.

The results also show that of all the thirteen (13) common grammatical errors only the plural/singular noun with r-value of 0.1.94 and p-value of 0.045 has significant correlation with peer influence. The level of peer influence increases the level of commission of common grammatical errors in capitalization, punctuation, use of preposition, tenses of verb and missing word/s decreases.

The result is in contrast with Lukmani (2015) in a study wherein students were tested on English proficiency and the nature of their motivation for learning English. One of the identified factors is peer who influences the students to acquire low or high level of proficiency in English.

The table shows that among the thirteen (13) types of common grammatical errors, there is a significant correlation between Senior High School students' level of motivating factors in terms of personal interest and eight (8) common grammatical errors namely; capitalization, punctuation, use of preposition, conjunction, adverb/adjective, article, tenses of verb and missing word.

The finding is affirmed by Hidi and Harackiewicz (2018) when they emphasized that interests and goals have been identified as two important motivational variables that impact individuals' academic performances.

Conclusion

As a result of the findings, it can be concluded that there is no significant relationship between the factors that motivate the students to learn English and their level of commission of grammatical errors was rejected. Self-improvement and personal interest as factors that motivate the students in learning English have significant correlation with the level of commission of grammatical errors of students while peer influence has no significant correlation.

The results of the study imply that Senior High School students are motivated to learn the English subject because they want to improve themselves by excelling in their class, enhance their speaking skills and develop self-confidence. In the same manner, the students are encouraged to be proficient in the use of English particularly in different reading and writing activities that enhance their skills in English.

As an offshoot of this study, *Enrichment Activities in English* was developed to help the teachers facilitate the enhancement of the English competence of the students through incorporating in the current curriculum the different activities that will promote improvement of English proficiency manifested in their speaking and writing skills.

The ten (10) enhancement activities that are proposed in this study are (1) Dear ME, (2) Story – Link, (3) Squad Vlogs, (4) E-Zones, (5) English Fest 4.0, (6) The MS Critiques, (7) The Reading Treasure, (8) E- Buddies System, (9) E- Parking Space and (10) Error Analysis Module. At the end of the activities, the students are expected to (1) enrich their vocabularies through the different reading and writing activities; (2) enhance the English proficiency of students both in oral and written communication; (3) develop critical thinking and creativity in writing different compositions; (4) improve confidence of students through the different verbal linguistic activities; and (5) utilize the social media for the students' advantage and have fun while learning Recommendations

It is recommended that teachers should be aware that self-improvement, peer influence and personal interest are factors that motivate the students to learn English and come up with learning activities in line with the mentioned factors. English teachers should take into consideration the identified factors (self-improvement, peer influence



and personal interest) that motivate the students to learn in planning their lessons and in developing strategies that for the students to learn their lessons. Teachers should be aware that tenses of verb is the most common grammatical error committed by students; therefore, they should develop several activities that will correct the common grammatical errors.

The developed enrichment activities of the researcher may be adopted by the Senior High School teachers of the City Schools Division of Cabuyao and other Schools Division in Region IV-A to help them improve the performance of students in written English composition. The Higher Education Institutions can also use the Enrichment Activities in English to improve the English proficiency levels of the college students particularly those who are assessed to have poor performance in English subjects.

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SEAAIR2019 THEME 5.

Research Institutionalization: Systems, Dissemination and Utilization

19th South East Asian Association for Institutional Research Annual Conference						
Theme	Transforming Intelligence Into Action in IR					
Sub-Theme	 Quality Assurance: Practices, Imparts and Outcodes Advanced Technology and IP Application: Social Networks Data Warehousing ind Data Collection Institutional Governance: Enroment, Social Mobility and Higher Education Accountability Current of Dimensions and Possibilities: Innovations, Schentic Assessments and Gormance Evaluation Research Institutionalization: Systems, Dissemination and Utilization 					



Comparison of Institutional Performance Between National and Private Universities of Science and Technology in Taiwan Using World University Ranking Indicators

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ABSTRACT

The option of entering a good university is multiple and strategic. Some famous world university ranking reports are published and discussed; however, there is some information hidden. We compared two case universities in Taiwan with other national and private universities of science and technology to evaluate institutional performance between public and private universities. We also detected the strengths, weaknesses, opportunities and threats of the two case universities according to the indicators of the Times Higher Education and Ministry of Education (MOE). We used Tableau software in order to transfer information from the MOE database to visual dashboards. The findings show that the national university is good at teaching and had more international teachers, whereas the private universities is that the staff-to-student ratio is too high compared to other universities. Because of the shortage of Ph. D. students, the research of the national case university is less. Following the new south-bound policy of the government, both cases have the opportunity to improve their international outlook. With respect to threat, both universities faced the problem of fewer students, especially the private university. This analysis can provide useful insights to the policy makers to improve institutional administration and attract staff and students with more potential in future.

Keywords: World University Ranking, Performance Indicator, Tableau, SWOT







Introduction

Since 2015, the Ministry of Education (MOE) in Taiwan has focused on the importance of Institutional Research (IR) and set up IR Regulations in higher educational institutions. The main issue carries out research to analyze student learning outcomes for self-evaluation and government financial subsidy during three years' projects. In addition, the issues of institutional research include administration, teaching, research, students learning outcomes and society responsibility, etc. Through this research, institutions report their performance to the public and link institutional performance with budget allocation (Burke & Minassians, 2003; Martinez & Nilson, 2006; Shin 2010). Institutional research in the university supports information dissemination and utilization to help the policy makers allocate resources well. With respect to institutional effectiveness evaluation, there are some famous international rankings such as Quacquarelli Symonds World University Rankings (QS) Top Universities, Times Higher Education (THE) World University Rankings, Academic Ranking of World Universities (ARWU) and Webometrics Ranking of World Universities, etc. which are used by universities these days. OS World University Rankings is more focused on reputation surveys, with a weightage of 50%. ARWU emphasizes on the number of outstanding researchers who have won the Nobel Prize or the Fields Medal and the number of papers published in top journals. THE ranking applies five assessment indicators to cover all the university activities. The purpose of their ranking is to offer a definitive list of the world's best universities which are evaluated across teaching, research, international outlook, reputation and industry income (THE, 2019). Their data is trusted by governments and universities and helps students choose which university to study in.

The critical factors of THE ranking include academic staff, international academic staff, research staff, students, international students, undergraduate degrees awarded, doctorates awarded, institutional income, research income, research income from industry and commerce. In our paper, we take some of these factors into consideration to carry out the study. In order to figure out the performance of these indicators, we made use of visual software to disseminate large amount of data and convert it into meaningful information. According to the survey by Gartner, Tableau was one of the top three leading softwares in the 2018 Business Intelligence software execution for visual integrity. Tableau provides an interactive visual interface that can be used for mathematical calculations and statistical operations to present large amounts of data graphically (Hamersky, 2016). Peng (2017) described that visual materials can improve readers' understanding by reducing the size of information, filter important information, and let us extract key points and conduct subsequent analysis. In order to support policy makers to utilize the information from government's open access database, we linked the data from MOE and THE to evaluate their key performance factors together.

In Taiwan, the Ministry of Education (MOE) collects and publishes five types of institutional data (student, teaching, research, institutional management and finance) which is accessible to public each year to offer public the right to understand the status of each university in comparison to other universities. Using Tableau software, it is possible to reduce this amount of information and analyze it for institutional purposes. The universities in Taiwan can be classified into two types: national universities and private universities. In order to analyze the institutional performance from the authors' universities we compared a public and a private university using SWOT analysis.

To summarize, the research objectives of this paper include:

- 1. Link data from MOE and THE to evaluate their key performance factors
- 2. Use visual software such as Tableau to disseminate big data and convert it into meaningful information
- 3. Compare two case universities with other national and private universities of science and technology in Taiwan to evaluate institutional performance between public and private universities
- 4. Carry out SWOT analysis and analyze the research findings

Refer to the overall research structure of this paper in Figure 1.

Figure out the critical values between THE world university ranking and MOE open access Compare the national institutional performance with the private from Tableau

Set up SWOT analyses and support strategies to the policy makers

Figure 4 Overall research structure



Literatures Review

Need for Institutional Research

Recent developments such as the growing competition, rising costs, the need for cost containment, public demand for accountability and declining enrollment and graduation rates among students have expanded the need both for institutional research and for effective collaboration between researchers and administrators (Delaney, 1997). The need for information about higher education is expanding tremendously. Governments require more data about how institutional performance and outcomes. Accrediting bodies seek information to improve their capacity for supervision, verification and quality assurance. Prospective students and their families gather information about programs, costs and what their investments will get them. Employers seek greater alignment in terms of skills and capabilities of students and employer needs (Haskell, 2017). This convergence of expanding skills and capabilities and increasing demands puts immense pressure on those tasked with gathering and analyzing large amounts of institutional data and reporting results to different stakeholders. In most of the academic institutions, such responsibilities are placed primarily on an internal department within a university, referred to as "institutional research (IR)".

Institutional research at the university level has traditionally provided two levels of support: (1) collection and reporting of institutional data, and (2) policy analysis for management and decision making. The range and focus of these two levels of support vary within every university (Volkwein, 1990). Higher education theorists and practitioners have asserted that institutional research is essential to effective decision making in colleges and universities. Makani (2015) stated institutional research data management service support academic scholarship, knowledge creation, application motivations in a university environment. The presumed objectives of IR are institutional quality assurance and enhancement, as well to provide relevant information to all manner of internal institutional actors – senior leaders, student affairs officers, enrollment managers, financial aid officials and more. The fact is that all parts of an academic institution need data to fulfill their functions.

THE Ranking

Global rankings are a rapidly growing phenomenon which began in Shanghai in 2003 because China wanted to compete with the world's best schools, but had no idea how its universities stacked up (Zirulnick, 2010). Due to the link between education and prosperity, countries want to see their universities rise in the rankings (Zirulnick, 2010). Rankings help school's pinpoint areas where they lag so that governments can concentrate their resources on a smaller number of schools to boost them in the rankings and raise the country's overall academic reputation. Therefore, rankings have become the de facto measure of quality in the global university marketplace and if we can get the criteria right, we can really improve the universities.

THE Ranking is often considered as one of the most widely observed university rankings together with Academic Ranking of World Universities and QS World University Rankings (QS Asia News Network, 2018; Zirulnick, 2010; Altbach, 2010). The dominant QS criterion is a university's reputation, as evaluated by academics, which is weighted at 40 percent. On the other hand, in the Times rankings, a survey of teaching reputation is the closest thing to that QS criterion, and it is weighted at only 15 percent.

From THE (2019) methodology, the performance indicators are grouped into five areas: teaching (the learning environment); research (volume, income and reputation); citations (research influence); international outlook (staff, students and research); and industry income (research from industry and knowledge transfer). Times's measures of research influence, output, revenue, and reputation account collectively for 62.5 percent of the ranking. Classroom factors such as student-faculty ratios, academic awards, and faculty salaries, along with the school's reputation, make up 30 percent. Research income from industry and the international makeup of the faculty and students also factor in slightly. Compared to other rankings, Times methodology offers a sharper picture of a university's capabilities and is praised for having a new, improved ranking methodology since 2010. It is described to be one of the most influential international university rankings (Zirulnick, 2010; Samarasekera & Amrhein, 2010; Beck & Morrow, 2010).

Dissemination of Information

Recently the capacity for collecting and disseminating data about higher education is growing rapidly. New technology softwares, new analytic methodologies and new approaches integrate to create the potential for exponentially larger amounts and types of data that might be used to inform all interested parties (Haskell, 2017). The IR office typically collects as much data as possible, much of it through carrying out various surveys with



visualization information such as retention rate analyses (Cheng et al. 2018). The other method is collating data from other offices that collect specialized data such as student enrollments from a registrar's office or administrative staffing patterns from human resources. In Taiwan, the Ministry of Education (MOE) collects and publishes annual reports of five categories of institutional data which includes information related to students, teachers, research, institutional management and finance in the months of March and October. The MOE database is open (2018) and accessible to the public.

Gray (2008) stated that the software of Tableau provided users to visualize relationships between data by dragging the movement of variables to the area of shape, size, row, column, color, and texture. It can draw different kinds of graphs from a large dataset. Through information reduction and filtering out important information, the dashboard can also let us compare diverged situations with different variables at the same time. We can explore their performance and do an advanced analysis. Therefore, in institutional research analyses, Tableau plays an easy, convenient and more efficient option to disseminate large amounts of data into interactive and meaningful information useful for institutional stakeholders and policy makers (Hamersky, 2016).

It has also become crucial to determine what are the strengths, weaknesses, opportunities and threats of universities (SWOT analysis) to reveal the university's strengths, which directly tie to their mission in providing high quality and cost-effective support to student learning and education. Strengths are defined as the advantages of the institution; weaknesses as the shortcomings and necessary to learn more; opportunity as what we had been given from the environment; and threats as what our concerns are outside the situation. SWOT analysis has been used in educational areas, such as development of new school programmes (Balamuralikrishna & Dugger. 1995) and enhancing college admissions in minority groups (Gorski, 1991). SWOT is primarily used to formulate future strategies by practitioners and academicians (King 2004, Helms and Nixon 2010) and also assist in the process of decision making (Panagiotou, 2003).

Methodology

Research Cases Introduction

This paper uses two case universities from Taichung city in Taiwan. One is a national university of science and technology and the other is a private university of technology. There are totally five colleges in the national university and 21 departments including college of commerce, design, information and distribution science, language and health. There are totally five colleges in the private university and 23 departments including college of management, science and engineering, design, humanities and social sciences, and information management. The enrollment rate of the national university is very stable because of its convenient geographic location and cheaper tuition and incidental fees. Besides, the government subsidy in the national university for teaching practice and research programs was number one last year among all the universities of science and technology. The number of students that enroll every year in the private university is around 15,000-16,000. The private university is famous from the perspective of research. It is the only private university of science and technology in Taiwan that showed up in the list of THE world university ranking, in the field of computer science which is in the top 600⁺ all over the world. In order to support the policy makers, we compared the two case universities with other national and private universities of science and technology in Taiwan using MOE's open access database.

Research Procedure and Variables

In the months of March and October every year, MOE publishes an annual report consisting five categories of institutional data related to students, teachers, research, institutional management and finance. Information related to students consists of the demographic details of students such as the number of students enrolled in formal schooling, the number of graduates, the number of overseas students, etc. Information related to teachers consists of the demographic details of school teachers', including full-time/ part-time teachers, foreign full-time teachers and number of teaching hours required for full-time teachers; etc. The school collects funds for various programs, industry-university cooperation projects, academic research projects, etc., and the ratio for each division; the number of patent applications, new varieties, and intellectual property rights. Information related to institutional management includes details about school affairs and academic affairs, including tuition fees and miscellaneous fees for each college and department, number of courses started, and graduation credit structure, etc. The department publishes financial year-end information for the school year (study year), which includes the school's available funds, cash increase and decrease, and tuition and fees, etc. To be considered for ranking evaluation, every institution must meet seven criteria such as: 1. Sufficient publications, 2. Undergraduate students, 3. Subject breadth, 4. Sufficient data in overall submission, 5.



Sufficient overall values., 6. At least one subject submission and 7. Not featured in custom exclusions list in order to be included in the overall ranking.

The data in the MOE open database used in this paper was collected from August 2017 to July 2018. All the national universities of science and technology (N=15) and top 17 (top one-fourth out of the total number) private universities of science and technology were filtered using Tableau. The dashboards showed top 16 results which is the average of the total number of universities between national and the private universities of science and technology. Thereafter we analyzed the rankings and carried out SWOT analysis using different performance indicators as shown in Table 1.

THE Indicator	MOE Items
Teaching (the learning environment)	Reputation (Total number of students and
	Enrollment Rate)
	Staff-to-student ratio
	Institutional income
Research (volume, income and reputation)	Research income
International outlook (staff, students, research)	Proportion of international students
	Proportion of international staff
Industry income (knowledge transfer)	Research income from industry &
	commerce / Academic Staff

Table 1: MOE open database and THE world university ranking common indicators

Because enrollment rate partially represents reputation of a university, the variable of total number of students and enrollment rate in the MOE database was evaluated in our study to replace the indicator of reputation. Using Tableau, the school name was shown on the x-axis, and critical indicators were shown on the y-axis. On the top of the dashboard, universities that performed better could be checked by comparing national and private universities of science and technology. On the bottom of the graph, the results laid out institutional performance of all national universities of science and technology and top 17 of private universities of science and technology.

System Dissemination and Utilization Using Tableau Dashboard

After checking for any missing data, we fed the raw data from MOE open database and THE world university ranking indicators into Tableau. The factors included Teaching (Reputation-Total students and Enrollment rate, Staff-to-student ratio, and Institutional income), Research (Research income), International outlook (Proportion of international students and teachers), and Industry income (Research income from industry).

Tableau software produces visual results in four stages. The first step is to key in the raw data from MOE open database. The second step is to transfer the large amount of data into visual graphs in each sheet. In the layout, qualitative and quantitative variables were clustered into two sections. By dragging critical variables into row and column, the visual graphs could be shown in different sheet types. The performance can be ranked in order and different colors can be used to distinguish the variables. The third step is to upload the dashboards and publish them in IR system (https://public.tableau.com/profile/rainlet.hou#!/). The last step is to disseminate IR information to policy makers. No matter where and when the policy maker is, he or she just needs to enter id and password in the system, and the manager can see and check the performance and filter any changes on the web. The IR system supports real time information and is beneficial for decision making.







Results

The results obtained for all the factors are presented below:

Teaching

Total Students and Freshmen Enrollment Rate

For the variable of total number of students, the private university of science and technology ranked in top three, and the national university of science and technology ranked in top 5 among all the universities of science and technology in Taiwan (Figure 3). With respect to the variable of enrollment rate, the case of national university of science and technology was very stable and had results higher than the average (mean=88.57). In Q1, the enrollment rate of the private university of science and technology was also above the average (mean=82.31). Therefore, the reputation was good in both the case universities.

2018 Total Students and Freshmen Enrollment Rate (Top16)



Teaching: Ratio of Student over Teacher

Among all the universities of science and technology, the variable of number of teachers ranked in the top 6 and top 7 universities on the dashboard (Figure 4). However, the ratio of students over teacher of the two cases was higher than the average. The standard ratio of students over teacher in day system in Taiwan is 23:1 which means that it is required to have at least one teacher for a class of 23 students. The variable was necessary to be adjusted for the two case schools to match the requirement of healthy institutional evaluation.



2017(Aug.)-2018(Jul.)Teacher Numbers and Ratio of Student over Teacher in Day System(Top 16)





Institutional Income

According to the institutional capital and current cash flow, most of the national universities of science and technology were robust in financial management. The case of national university of science and technology ranked in top 3 among all the universities of science and technology and topped in all national universities of science and technology (Figure 5). Although, the private case wasn't in the top 16, it was still in the group of Q1 among the private universities of science and technology.



2017(Aug.)-2018(Jul.)Institutional Capital and Current Cash(Top 16)

Figure 5: 2017-2018 School available funds, cash increase and decrease in the current school year - by school



Research

Research Income

With respect to the variable of research income, the private case performed well (in top 11) among all the universities of science and technology (Figure 6). Contrarily, the performance of the national university of science and technology was worse than the average (mean=368,983,974).



2017(Aug)-2018(Jul.)Research Projects Income (Top16)

Figure 6: The school undertakes the funding of research for various units and the ratio pf project to total revenue. - by school


Internationalization

In the section of international teachers, both of the cases were outstanding as they invited foreign teachers in their schools. We skipped the 15^{th} and 16^{th} and only showed top 14 because there were 6 universities in the same numbers (N=4) related to the international teachers. The private case school did promotions abroad, so the number of international students was higher than the average of Q1. The private university ranked in top 11 with respect to the indicator of international students (Figure 7). However, the international students were very few (N=7) in the case of national school.



Industry Income

For the variable of industry income, the private case performed well (top 9) among all the universities of science and technology (Figure 8). Contrarily, per teacher industry income in the national case school (NT\$131,163) was worse than the average (NT\$388,620) among all the national universities of science and technology. In general, the average industry income of national universities of science and technology was better than the average of private universities of science and technology.



2017(Aug.)-2018(Jul.) Industry-University Income (Top 16)





Results from SWOT Analysis

Using the results from Tableau dashboards and evaluating them further for the national and private case universities, we chalked out the strengths, weaknesses, opportunities and threats for two case universities with respect to the factors of teaching, research, international outlook and industry income (Table 2).

Strength

Total Students and Enrollment Rate: The private university of science and technology ranked in top three, and the national university of science and technology ranked in top 5 among all the universities of science and technology in Taiwan.

Institutional Income: The national university of science and technology ranked in top 3 among all the universities of science and technology and topped in all national universities of science and technology.

Research Income: With respect to the variable of research income, the private university performed well (in top 11) among all the universities of science and technology.

Industry Income: the private university performed well (top 9) among all the universities of science and technology.

Weakness

Ratio of Student over Teacher: The ratio of students over teacher of the two case universities was higher than the average. The standard ratio of students over teacher in day system in Taiwan is 23:1 which means that it is required to have at least one teacher for a class of 23 students.

Research and Industry Income: Both the performances between research and industry income of the national university of science and technology was worse than the average.

Opportunity

Due to the south bound policy of the Taiwan government, international staff and students could be the new source for institutional revenue and competition. Especially for the private case university, the THE world university ranking can attract more foreign students to join the campus. About the geographic position, it's very convenient in terms of traffic for the national university of science and technology because it is in the central part of Taichung city.

Threat

The birth rate is decreasing gradually in Taiwan. It has become a problem all over the nation. The ratio of student over teacher is related to the lower enrollment numbers of students. So, the office of human resources keeps higher than the standard value in Taiwan. About the Geographic position, the national case school is in the urban area; however, the private one is in the inconvenient area. It might influence motivation of the students while selecting a university.

	Strength	Weakness	Opportunity	Threat
National case	1.1 Total students and	1. Ratio of student over	1.Internationalizati	Birth Rate
school	enrollment Rate	teacher	on	
	1.3 Institutional Income	2. Research Income	2. Government	
	3. International teachers	3. International	subsidy	
		students	3. Geographic	
		4. Industry Income	position	
		5. Ph.D. students		
Private case	1.1 Total students and	Ratio of student over	1.	1. Birth Rate
school	enrollment Rate	teacher	Internationalization	2. Government
	2. Research Income		2. Government	Policy
	3. International teachers		subsidy	3. Geographic
	3. 2 International students		3. THE world	position
	4. Industry Income		university ranking	

Table 2: Results from SWOT analysis



Discussion

The National Case University

The results show that the national case university mainly focused on teaching and the research performance of the university was worse than average. The reason for this is because only the undergraduate and master students had enrolled in the university. There were no Ph.D. students. Due to the new policy of MOE, teachers can apply for subsidy to present their research. The national university passed the Jump-Up program of the government to offer more research and industrial academic cooperation subsidies for the teachers who produced excellent papers or projects. This can be considered as a turning point for the national case school to improve the research and industry income. Also, there were very few international students in the national case university. The main reason is that the institutional income is good enough and when the enrollment of students from Taiwan is higher, the institutional income will also be higher. Therefore, the promotions made in foreign countries to attract international students have been less as compared to the private universities.

The Private Case University

The results for private case university are a little different from the national case university. There were research teams in the private case university including teachers, graduates and Ph.D. students. In addition, there were many international masters and postdoctoral researchers invited by the university. Due to these reasons, the factors of research income and THE world university ranking outperformed. But with respect to threats, the plan of building a convenient campus, creating a new department of aerospace engineering and seamless integration between international and local academic learning programs were pushed by the policy makers. Due to the threat factors, both the private and the national schools need to pay more attention and effort to visit international partners in order to improve international collaboration and increase the number of international staff and students.

Implications & Recommendations

In our research, indicators of teaching, internationalization, institutional, research and industry income were evaluated. Some critical indicators were transformed into direct action points in IR while doing analysis. Some hidden or closed data was also collected and disseminated by the system. For example, hidden data such as productivity and citations play an important role in the evaluation of THE world university ranking. The government subsidy supported the growth of teaching practice, research and academic or industry cooperation reports. By the inner IR database, more and more valuable information can be disclosed using AI or BI system. That will create more precise and efficient analyses for the policy makers in the future. Through this study, the case universities can also do an internal evaluation of their departments and market the competitive advantage of their universities. We suggest that national universities can strengthen their research aspect by increasing the number of collaborations with other teachers or researchers and industries to focus more on adding productivity in publications. This will benefit all the stakeholders including students. The private university should offer more efficient administrative support and scholarship or subsidies to disadvantaged students to mitigate the issue of lower birth rate. Also, many researchers have focused on university marketing to attract more students. Rauch et al. (2010) did an importance-performance analysis to evaluate marketing done in university. Urbanovic (2014) set up a marketing model of quality assurance, to achieve institutional goals using the ideas of partnership and cooperation. We suggest that both the national and private universities put some focus on their marketing strategies in order to attract staff and students with more potential.

Conclusion

In the competitive market of international higher education, robust and sustainable administration of each university is necessary. This information, which usually goes hidden, should be disclosed so that it can be used to improve the existing processes in the administration and IR related departments in the university. In our research, we compared two case universities in Taiwan with other national and private universities of science and technology to evaluate institutional performance between public and private universities in Taiwan. Through the visual software of Tableau, common indicators between MOE open database and THE world university ranking were filtered and analyzed using dashboards. These dashboards disseminated meaningful information which can be used to plan institutional strategies. In addition, SWOT analyses were carried out in this research. After the evaluating and analyzing the strengths, weaknesses, opportunities and threats, each university revealed its distinguishing features in comparison to other universities. The critical indicators were then transformed into direct action points in IR while doing analysis. This research aims to benefit all the



stakeholders including students. Taking cues from the analysis, more capital and further effort could be put in to different factors that enhance the overall performance of the university. We also suggest that national and private universities should focus on their marketing strategies.

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Teachers' Research Beliefs, Research Attitude, Research Motivation and Research Utilization: A Structural Model

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ABSTRACT

Given the main mandate of universities in the trilogy of research, teaching and societal interaction, universities are expected to have a firm tradition of research. This study established a model that explains research utilization in terms of teachers' research beliefs, research attitudes, and research motivation in a private non-sectarian university in Southern Philippines. More than two hundred teachers of the university participated in the study. The data collection tool was a researcher-made Teachers' Research Beliefs, ResearchAttitude, Research Motivation and Research Utilization Survey Questionnaire, which was adapted from existing literature and studies, content validated, and pretested for reliability. Descriptive statistics and structural equation modeling (SEM) were used to organize the data. Confirmatory factor analysis in the SEM further supported the validity of the constructs. Findings reveal that research motivation mediated the impact of research beliefs and attitude towards research on research utilization. Results of this study will be utilized to enhance the current academic efforts not only to encourage more teachers to engage in research but also to strengthen the link of research to instruction.

Keywords: Research Beliefs, Research Attitudes, Research Motivation, Research Utilization





Introduction

Universities around the globe are experiencing increased pressure brought about by globalization in the 21st century and rapid expansion of the knowledge-based economy moving towards innovation-based economy. This globalized pressure, which is cultural, economic, political, business and power in nature, has pushed higher education into greater international involvement (Altbach and Knight, 2007; Bond, 2006; Cinches et al., 2015).Greater international involvement also points at the essential roles of higher education in the knowledge-based economy. The "general roles of higher education include training/teaching (as knowledge economies need skilled human resource), research (higher education conducts both basic and applied research for knowledge economies), innovation, social and cultural criticism, and repositories of knowledge for society" (Altbach, 2007).

Research and teaching are considered the main pillars of higher education and are significant key indicators of quality in institutions of higher learning. The relationship between teaching and research in the modern universities is an international concern. International university ranking systems put premium on teaching-research productivity (Altbach, 2012). Over the past three decades, university rankings have expanded in numbers and geographical coverage, where teaching and research are drawn in knowledge generation.

Universities stand to be on numerous advantages when research informs teaching. Studies have established the benefits of teachers engaging in research, such as students' better school engagement, satisfaction with the course, and increased confidence as learners and independent thinkers (Baldwin, 2005; Wuetherick, 2009; University of South Carolina, 2019). The existence of such a fruitful link between teaching and research is considered an article of faith with many teachers believing that research informs and enhances teaching (Baldwin, 2005).

Brew (2012), however, suggested that drawing teaching and research more firmly together should not be understood as educating all students to become academics, nor should it only be construed as an exercise to give impressions that all teachers are involved in research. Rather, it should be regarded more as "a response to a number of changes in higher education that have challenged" the connectedness of teaching and research in generating knowledge (Brew, 2012). Among these challenges is the "gravitating of the rapidly expanding knowledge-based economy towards innovation-based economy" (Altbach, 2012)

There is a need for a model that explains the relationship between teaching and research amidst the changes that are rapidly taking place in the higher education context, considering the varied understandings of this relationship. Such a model can be used as guide in bringing research and teaching closer and in enhancing both (Brew, 2012).

In the quality assurance framework of the Philippine Higher Education, knowledge generation is seen in the context of the trilogy (research, teaching, and societal interaction), thereby requiring HEIs to have firm traditions of research. Universities are expected to emphasize the development of new knowledge and skills through various academic programs at different levels. The Commission on Higher Education (CHED) mandates that "research orientation be emphasized in all degree programs" (CHED Handbook, 2014, p.14).

Research orientation is evident in the university under study. All degree programs require research outputs before degree conferment. Teachers are encouraged to engage in research by giving them not only monetary rewards but also ranking opportunity. However, only few teachers are still engaged in research or utilize research for classroom instruction. For the past five years, less than 30% of the full-time teachers conducted faculty research, yet not regularly, and about 10% of the faculty utilized research results (RPE Office, 2019). This situation raises a question on what the teachers' general conceptions of education research could be.

For the purpose of this study, education research refers to teacher research that is intentional and systematically conducted with the goals of gaining insights into teaching and learning, seeking practical solutions, exploring innovations and changes in the classroom or school, and ultimately improving the lives of learners (Cochran-Smith & Lytle 1993; 1999; Henderson, Meier, Perry, & Stremmel, 2012). Teacher research and action research are often used interchangeably in the literature, the latter being the preferred term in Britain (Cochran-Smith & Lytle, 1993). Education research also refers to action research.



There is a dearth of studies on research utilization relative to teachers' research motivation, research beliefs, and research attitude. On the assumption that individuals' behavioral intentions or reasoned actions are influenced by their beliefs and attitude, this study developed a model that explains research utilization in terms of research motivations, research beliefs, and research attitudes among teachers of the HEI in focus. Results of this study are hoped to strengthen existing structures, policies, and practices of the university to encourage more teachers to engage in research regularly so that the current teaching-research practices may be enhanced not only to optimize student learning but also to inform university decisions on faculty and instruction.

Framework

This study is grounded on the premise that teachers' research beliefs, attitudes attitude towards research, and research motivation cause research utilization in support of teaching. This premise is supported by Fishbein and Azjen's (1975) theory of reasoned action and Deci and Ryan's (2008) self-determination theory.

Research Beliefs and Attitudes. The theory of reasoned action (Fishbein and Azjen, 1975) is useful for understanding how teachers' attitudes towards and beliefs about research may relate to their use of research findings for classroom teaching. The theory explains that teachers' behavioral intentions are swayed by their attitudes and beliefs. The interplay of attitudes, beliefs, intentions, and actions is central to this theory. The theory asserts that what had previously been called "attitude" is made up of three components: affective, cognitive and conative; or attitudes, beliefs and actions. The affective component (attitude) refers to a person's emotions toward an object, person, issue or event, while the cognitive component (beliefs) includes a person's knowledge, opinions, thoughts, and views about an object, person, issue or event. The conative component (action) refers to a person's behavioral intentions and actions toward an object (Fishbein et al., 1975). The authors further suggest that people's beliefs determine their attitudes toward an object. Thus, when teachers believe that research is part of teaching that improves curriculum, they would most likely have positive attitude towards research. In turn, people's attitudes influence their behavioral intentions, which influence their actions. Because teachers' beliefs are likely to guide and define practice (Ashour, 2012), research beliefs refer to teachers' convictions and assumptions about research in relation to teaching or classroom experiences. Teachers, for instance, believe that research findings enhance pedagogy and improve curriculum. The educational beliefs of teachers are strongly believed "to guide the decisions they make and the action they take in the classroom, which in turn has an impact on students" (Pedersen & Liu, 2003; Byrnes, 2009).

Intentions to engage in and utilize research are outcomes of positive attitude towards research. In this current study, the object toward which attitude was directed is teacher research or action research. Thus, *attitude towards research* is defined as a disposition to respond favorably or unfavorably to education research as a construct (Holincheck, 2012). *Research attitude*, therefore, includes position on responding to students' needs, improving teaching, and increasing student achievement (Byrnes, 2012). Determining teachers' research attitude is beneficial because teachers' attitudes have strong bearing on their professional development experience (Guskey, 2000, as cited by Byrnes, 2012). Also, the theory of reasoned action suggests that looking into teachers' research beliefs and research towards the use of research findings in improving classroom practices (Azjen et al., 1975). More recently, however, some scholars have criticized the theory because it ignores one's needs prior to engaging in a certain action, needs that would affect behavior regardless of expressed attitudes (Sniehotta, F., 2009; Sussman, R. & Gifford, R., 2019). Thus, the construct on research motivation.

Research Motivation. The Self-Determination Theory (SDT) of Deci and Ryan (2008) explains that humans have innate needs that promote their psychological health and well-being. These innate psychological needs (competence, autonomy, and relatedness) are deemed necessary for healthy development and effective functioning. Present in individuals are their beliefs and attitudes that may gravitate towards behavioral intention or action. Teachers have their research beliefs and research attitudes that may result in behavioral intention or action, which is research utilization. However, while research beliefs and research attitude may lead to research utilization, such action may depend upon the needs of the teachers that promote their psychological health and well-being.



SDT best explains motivation, asserting that the type of motivation present is more relevant than the amount of motivation when trying to predict behavior (Mayer, 2012). Thus, in this current study, research motivation is discussed in the context of intrinsic and extrinsic categories. SDT defines intrinsic motivation as the "inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn" (Deci& Ryan, 2000b). It is an essential part of healthy cognitive and social development and a central component of well-being and optimal functioning. According to Deci (1975), intrinsically motivated behaviors are based on people's needs to feel competent and self-determined. In *intrinsic motivation*, individuals are energized by the satisfaction they receive from a given activity that is independent of external pressures or rewards. Thus, teachers' satisfaction in doing and utilizing research can be attributed to their desire to 'explore and learn,' which is a manifestation of teachers' need to feel competent.

Extrinsic motivation, on the other hand, involves behavior that is not autonomously driven (Deci& Ryan, 2008). SDT also recognizes that many activities that people perform in their daily lives are not self-regulated (Deci& Ryan, 2000a). When behavior is driven by external sources such as rewards or social pressures, it is extrinsically motivated. For example, complying with research requirements given the university standards may not be inherently an interesting activity to all academics, but it is essentially necessary in maintaining one's professional status in the university (Mayer, 2012). Proponents of SDT suggest that there are types of extrinsic motivation, some of which represent suboptimal forms of motivation and others are linked to positive outcomes. What encourages teachers to engage in research or use research results in classroom teaching may be borne out of the desire to grow professionally or may be because of external pressure of the current structure. Mayer's (2012) investigation among doctoral students found that both intrinsic and extrinsic motivations were strong predictors of research interest. Hence, in this current study, research motivation is assumed to mediate the effects of research beliefs and research attitude on research utilization.

Research Utilization. In this study, the notion of research utilization was taken from literature and studies that discussed how research is used in teaching or vice versa. Thus, the research utilization construct was conceptualized by Griffith (2004) and Tillman (2013). Griffith (2004) described four types of teaching relative to research. The first type is *research-led teaching*, wherein teaching revolves around subject content with an emphasis on understanding research findings, rather than research processes; often based teaching on a traditional 'information transmission' model where the emphasis tends to be on understanding research findings rather than research processes. The second type is *research-oriented teaching*, which places emphasis on understanding the processes by which knowledge is produced. Such teaching type guides students in self-exploration and acquisition of knowledge through a scientific method. The third type is *research-informed teaching*, which emphasizes teaching and learning processes largely designed around inquiry-based activities, rather than the acquisition of subject content. The fourth type is *research-based teaching*, which emphasizes systematic inquiry into the teaching and learning process. In this case, the experiences of teachers are highly integrated into student learning activities and the role distinctions between teacher and student are minimized, with resolve in exploiting the interaction between research and teaching.

Tillman (2013), in a study, reviewed research utilization studies in various fields and identified determinants of research utilization across various fields that were summarized into four themes, namely individual, contextual, innovation, and communication. The individual dimension includes teachers' individual characteristics, abilities, and outlooks that impact research utilization. Teachers' skills or capabilities and previous exposure to research (Squires, Estabrooks, Gustavsson, & Wallin, 2011) have been frequently cited as either facilitators or barriers to research utilization. Confidence in using research results or one's own research result is a manifestation of individual's research utilization. Contextual factors, on the other hand, are seen to be among the most influential, whether or not research results are utilized. Included in these factors are organizational support such as encouragement in the use of research or provision of resources for research use. Access to resources (Internet, databases, library, etc.) also facilitates or hinders research use. Another theme refers to the characteristics of research results called innovation factors. The nature of research evidence, whether it is convincing or not, determines the utilization of findings (Ratcliffe, 2010); or when research results are conflicting, these may not likely to be used (Boström, Kajermo, Nordström, &Wallin, 2008). Furthermore, Tillman (2013) cited that even when research results are convincing, if teachers cannot see the relevance of the findings to their discipline, these findings are not likely to be used (Ratcliffe, 2010; Schoonover, 2009). Meanwhile, communication factors refer to the ways that research results are disseminated. Communicating the implications of research findings and their applicability to the practitioners' context was found to be positively related to research utilization. However, the inability to understand the analyses used by researchers can prevent many teachers from utilizing the findings (Boström et al., 2008; Schoonover, 2009). Lack of understanding of statistical language was also a



common problem among practitioners (Tillman, 2013). In summary, the following four dimensions of research utilization were considered in this study: individual factors, contextual factors, innovation factors, and communication factors.

The construct of *research utilization* is a blend of Griffith's (2004) typology of research-teaching nexus and Tillman's factors of research utilization. This construct was indicated by the manner research is used in teaching (Griffith, 2004) and some determinants of research utilization (Tillman, 2013).

With adequate theoretical underpinnings, this study theorizes that when teachers believe that research as part of teaching improves curriculum, they will most likely have positive attitude towards research, which, in turn, will influence their behavioral intentions vis-à-vis their actions on research utilization (Fishbein & Ajsen, 1975). However, while research beliefs and research attitude may result in research utilization, teachers possess innate needs that are directed towards psychological health and well-being (Deci& Ryan, 2008). Behavioral intentions on research utilization, therefore, may depend upon the needs of teachers for competence, autonomy, and relatedness and whether such actions promote their psychological health and well-being. The following hypotheses were tested to find the structural model that explains research utilization.

Hypothesis 1:Research utilization is influenced by research motivations (extrinsic & intrinsic), research beliefs, and research attitudes.

Hypothesis 2: Research utilization is directly influenced by research motivations (extrinsic & intrinsic), which are also caused by teachers' research beliefs and research attitude.

Methodology

Conducted in a distinguished 65-year-old private non-sectarian university in Southern Philippines, this study involved 96% or 211 full-time teachers. Data were collected using a researcher-made instrument based from existing literature and studies. The four-point scale instrument was content validated and had acceptable reliability coefficients (Cronbach's Alpha). The range of responses was 1 to 4 where 4 was the highest indicating *always true to me* and 1 was the lowest indicating *not true to me*. Items that measured research beliefs ($\alpha = 0.88$) were based from the study of Ashour (2012); research attitude items ($\alpha = 0.94$), Byrnes (2009); intrinsic research motivation items($\alpha = 0.84$) and extrinsic research motivation items ($\alpha = 0.91$), Tillman (2013) and Griffith (2004).

The study employed causal-comparative research design utilizing Structural Equation Modeling (SEM). SEM analysis via Amos 20 feature of SPSS 21 was used to establish path coefficients for further analysis of interrelationships. The presentation of research results was guided by literature on SEM as reported by Kenny, Kaniskan, and McCoach, (2014) and Kenny (2012). The estimation procedure utilized "model fit", "strength of the postulated relations between variables of interest", and "reliability of the parameter estimates." Thus, chi-square and the root mean square Error of Approximation or RMSEA were used for judging model fit. Kenny et al. (2014) contended that the RMSEA is currently the most popular measure of model fit; "it is now reported in virtually all papers that use CFA or SEM." MacCallum, Browne, and Sugawara (1996) used 0.01, 0.05, and 0.08 to indicate excellent, good, and mediocre fit, respectively. However, others suggested 0.10 as the cutoff for poor fitting models (Kenny et al., 2014). According to Hooper, Coughlan, & Mullen (2008), in reporting fit indices, it is sensible to include X^2 statistics, the RMSEA, the CFI, and one parsimony fit index, PGFI.

Results and Discussion

Table 1 shows the descriptive data of the sample that included scale reliabilities, means, standard deviations, and zero-order correlations for all the study variables. The different scales had acceptable constructs as earlier discussed and therefore reliable. In testing reliabilities, an alpha of 0.75 or greater is acceptable for instruments that assess knowledge and skills while 0.50 or greater is acceptable for attitude and preference assessments (Tuckman, 1999; Litzinger, Lee, Wise and Felder, 2005; Golez, 2015). The range of responses was 1 to 4 where 4 is the highest indicating *always true to me* and 1 is the lowest indicating *not true to me*. The responses were further interpreted as *highly positive beliefs* to *very negative beliefs* for research beliefs, *highly positive attitude*



to very negative attitude for research attitude, very high motivation to very low motivation for research motivations. For research utilization, the responses were interpreted as very often utilized to not at all.

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Variable	R	Mean	SD	1	2	3	4
1. Research Beliefs	.88	3.48	.48				
2. Research Attitude	.94	3.53	.54	$.848^{**}$			
3. Intrinsic Research Motivation	.84	3.35	.59	.777**	$.814^{**}$		
4. Extrinsic Research Motivation	.87	3.27	.66	.724**	.722**	.829**	
5. Research Utilization	.91	3.22	.61	$.749^{**}$	$.704^{*}$.772**	.823**

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Table 1.	Scale	Reliabilities.	. Means.	Standard	Deviation.	and Z	ero-Order	Correlation
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Correlations (n=211); **Correlation is significant at the 0.01 level (2-tailed)

As shown in Table 1, the teachers had positive research beliefs research beliefs (M=3.48, SD = .48) and very positive research attitude (M=3.53, SD=.54). Moreover, the teachers had high intrinsic motivation (M=3.35, SD=.59) and extrinsic motivation (M=3.27, SD=.66) to do research *utilization* had the lowest mean (M=3.22, SD=.61), but still generally indicating high *research utilization*. At zero-order correlations, these variables were observed to be significantly interrelated.

Finding the Best Fit Model that Explains Research Utilization. Hypothesized Model 1 stating that research utilization is influenced by research motivations (extrinsic & intrinsic), research beliefs, and research attitudes is not acceptable given the value of  $X^2=3.38$ , which is more than the acceptable ratio of 2, and the value of RMSEA (.106), which is also beyond the acceptable limits. After a series of modification, hypothesized model 2 was found more or less acceptable in the set criterion.

In the process of finding the best fit model, items having a factor loading of less than 0.6 were deleted from the measurement model as recommended by Awang (2012) in his SEM Handbook. Thus, after a series of modification, using string constraint parameters on regression weights estimates, research beliefs construct was left with four from ten item indicators and research utilization with seven from ten item indicators. One item indicator was trimmed from intrinsic research motivation. No items were trimmed down from research attitude and extrinsic research motivation scales.

Hypothesized model 2 stating that *research utilization is directly influenced by research motivations (extrinsic & intrinsic), which are also caused by teachers' research beliefs and research attitude was confirmed.* Table 2 shows the results after the calculation of the overall model fit indices of the hypothesized model, showing that the hypothesized model best fit given the data set of the study. Figure 1 presents the best fit model, depicting the most parsimonious fit as shown in Table 2 where X² ratio is 2; for absolute fit, root mean square residual is nearing zero (RMR=.033), root mean square approximation, (RMSEA=.07) (Kenny et al. 2014), and comparative fit index (CFI=.957). The incremental fit indexes of CFI, NFI, and TLI have values > .90.







The generated model confirmed the second hypothesis that *research utilization is directly influenced by research motivations (extrinsic & intrinsic), which are also caused by teachers' research beliefs and research attitude.* In Figure 1, the SEM model shows that both research motivation constructs are cause and effect variables. Direct effects on research utilization (RU) are observed from intrinsic research motivation (InM), the regression coefficient of which is  $\beta = .54$  and extrinsic research motivation (ExM) where  $\beta = .43$ . With r squared multiple correlation,  $R^2=.90$ , means 90% of research utilization can be predicted by research motivations. Furthermore, 78% of the teachers' intrinsic research motivation (InM) is explained by research beliefs (RB) with  $\beta = .39$  and research attitude (RA) where  $\beta = .50$ . Although ExM is not influenced by research attitude, it is indirectly affected since RA covaries with RB (covRB,RA =.98). This result implies a linear relationship between teachers' research beliefs and research attitudes, indicating direct proportion between the two constructs; that is, the more positive the beliefs, the more positive the research attitude.

Table 2. Results of the 0	Calculation of	Overall Model	Fit Indices of the	Hypothesized Model

Models	Absolute Fit			Incremental Fit			Parsimonious Fit
& Fit Criterion	RMR	RMSEA	GFI	CFI	NFI	TLI	X²/df
Hypothesized Model 1	.137	.106	.624	.746	.676	.729	2330/694 = 3.36
Hypothesized Model 2	.033	.07	.905	.915	.903	.904	816.93/392 = 2.0
Standard Fit Criterion	Nearing Zero	<.06 to .08	>.90	>.90	>.90	>.90	Ratio of $X^2$ to $df \leq 2$

The figure further shows that about 90% of the changes in RU were caused by these motivation variables. Specifically, the 54% direct effect of intrinsic research motivation on research utilization can be further explained by the teachers' self-report ( $M_{Mi}$ =3.35, SD=.59, *high intrinsic motivation*) as follows: "I enjoy doing research" ( $\beta_{Mi1}$ =.68), "research can help me understand the world better" ( $\beta_{Mi2}$ =.72), "research can help me grow professionally ( $\beta_{Mi4}$ =.78), and "I can contribute to the growth of my discipline" ( $\beta_{Mi5}$ =.82). These responses are reflected in the definition of Deci & Ryan (2000b) of intrinsic motivation as the "inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn." Deci (1975) also said that intrinsically motivated behaviors are based on people's needs to feel competent and self-determined. Thus, teachers' satisfaction in doing and utilizing research can be attributed to their desire to 'explore and learn,' which is a manifestation of their need to feel competent.

Extrinsic motivation bears 43% of research utilization. Teachers had a mean score of 3.22 (*high extrinsic motivation*), SD=.61. The SEM in Figure 1 shows that the teachers' motive for research utilization was driven by external sources as reflected by the following responses: "I am inspired by my peers to do research" ( $\beta_{Me1}$  =.81), "doing research is highly regarded and always supported by the university" ( $\beta_{Me2}$  =.77), "the present University structure inspires me to do research" ( $\beta_{Me3}$  =.82), and "I am motivated to conduct research for promotion" ( $\beta_{Me4}$  =.68). SDT also recognizes that many activities that people perform in their daily lives are not self-regulated (Deci& Ryan, 2000a). Rewards such as promotion and social pressures like peers or university standards may not be an inherently interesting activity to all academics, but it is essentially necessary in maintaining one's professional status in the university. Proponents of SDT identified types of extrinsic motivation, some of which represent suboptimal forms of motivation and others are linked to positive outcomes.

The model further shows an r squared correlation of ( $R^2 = .78$ ) meaning, 78% of the teachers' intrinsic research motivation was caused by research beliefs, the regression coefficient of which is  $\beta_{RB} = .39$  and research attitude ( $\beta_{RA} = .50$ ) show the strength of impacts of research beliefs and research attitude on research motivation. Descriptive statistics on research beliefs ( $M_{RB}=3.48$ , SD = .48, positive) included positive views on the following indicators: "research is about applying methods in the classroom" ( $\beta_{B5}=.64$ ), "... is about combining methods of data collection" ( $\beta_{B6}=.76$ ), "... improves curriculum ( $\beta_{B7}=.76$ )," and "...findings of research can be applied in the classroom" ( $\beta_{B9}=.68$ ). Teachers' research beliefs are covariants of research attitude, which implies a linear relationship; that is, the more positive the research beliefs, the more positive the research attitude.

Teachers had a response mean of  $M_{RA}$ =3.54 with SD=.54, meaning positive research attitude. Prominent responses included "teacher research can help me make informed decisions that lead to positive changes in my teaching" ( $\beta_{RA2}$ =.84), "doing research can help me respond to students' needs" ( $B_{RA3}$ =.86), "teacher research



can help me pursue topics that are relevant to my teaching" ( $\beta_{RA4}=.88$ ), teacher research can increase student achievement in class" ( $\beta_{RA5}=.81$ ) and "....can help me pursue pedagogical practices that interest me"( $\beta_{RA7}=.80$ ). Positive outlook about teacher research can motivate teachers to do and utilize research owing to individuals' "inherent tendency to seek out novelty and challenges, to extend and exercise their capacities, to explore, and to learn" (Deci & Ryan, 2000b). The theory of reasoned action also suggests that looking into teachers' beliefs about and attitudes toward education research may help in further understanding teachers' behavioral intentions and actions related to education research and the use of research findings to improve their pedagogical practices (Azjen and Fishbein, 1975).

On the other hand, the factor loadings of research utilization variables were all observed to be significant after three items were trimmed. It is worth noting that the following responses that indicated utilization of research findings to improve pedagogy are supported by Griffith's (2004) *research-led teaching* and Tillman's (2013) *individual factors*: "I utilize research results in my discipline to improve pedagogy" ( $\beta_{RU1}$ =.78), "...take extra effort to search recent studies to enhance my lessons" ( $\beta_{RU2}$ =.79), "I am confident in using research results" ( $\beta_{RU3}$ =.78), "my teaching is structured around subject content with an emphasis on understanding research findings" ( $\beta_{RU8}$ =.70) and "...use results of student researches in my lesson" ( $\beta_{RU9}$ =.74). *Contextual factors* and *communication factors* of Tillman (2013) were also expressed in these statements, respectively: "...encouraged to utilize research results because of our access to internet, research data bases, or library" ( $\beta_{RU4}$ =.80) and "research results in the university are widely disseminated" ( $\beta_{RU7}$ =.67). The findings indicate that generally, the teachers, whether they have conducted research or not, utilize research in teaching although in a limited manner.

The confirmed hypothesized model stating that *research utilization is directly influenced by research motivations (extrinsic & intrinsic), which are also caused by teachers' research beliefs and research attitude* is explained by the Theory of Reasoned Action (Fishbein & Ajsen, 1975). The authors postulated that people's beliefs determine their attitudes toward an object. Earlier, the theory further asserted that beliefs and attitudes of individuals gravitate toward behavioral intentions or actions. In this study, the action refers to research utilization. Studies contested this argument because one's needs prior to engaging in a certain action are overlooked (Sniehotta, 2009; Sussman & Gifford, 2019). Deci & Ryan (2008), in an attempt to explain motivation, theorized that there is in every person the innate needs to promote psychological health and wellbeing. That is, teachers' action or research utilization is dependent upon their prior needs and whether doing so is of advantage to their psychological health and well-being.

#### Conclusions

The model explains that teachers' research beliefs and research attitude do not directly cause teachers to utilize research or to conduct research; rather, it is research motivation that causes them to utilize research. However, the findings lead to a question whether encouraging teachers to utilize research to enhance pedagogy helps to meet their innate psychological needs for competence, autonomy, and relatedness. The university may need to review its present structure of motivating teachers to conduct and utilize research to improve pedagogy. External structures to motivate teachers to engage in research and utilize research findings need to be studied because research beliefs and attitudes cause research motivation. One central point of this study is the importance of instilling among teachers a highly positive research beliefs and attitudes to stimulate strongly their desire to explore and learn (intrinsic) and to comply with research requirements (extrinsic) for maintaining their professional status in the university.

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# **Poster Presentation**

NO	NAME	POSTER TITLE		
1	Chien-Chih Weng Hsin-Peng Shiah Hou Chin-Lun Tsai	The Impact of Critical Development Experiences on the Types of Job Mobility and Career Success		
2	Chin-Lun Tsai Mei-Chuan Chan Hsin-Peng Shiah Hou	The Impact of Critical Development Experience on the Job- Transition in the View of Workflow: The Moderating Effect of Industry.		
3	Chin-lun Tsai I-chi Chung	Concern of Career opportunity effect on Career satisfactions for information : the mediate effect on career self-efficacy		
4	Chin-lun Tsai Chih- Kaung Tai Hsin-Peng Shiah Hou	Graduate's Cognitive Learning Index to Career Satisfaction : Mediate Effects of Career Compromise		
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10	Yang Liang-Chih	Online Course with Click-and-Mortar Practice–Case Study on Blended Learning		
11	Wei-Ting Chen Shin-Jen Chang Chih-Chiang Yang	Disadvantaged Student Success in College and Employment: Information and Implications for Informed Decision Making		



NO	NAME	POSTER TITLE
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	Shih-Ching Wang	
12	Ya-Han Hsu	Development and item response analysis of the General Core Ability-scale.
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12	Yuan-Fang Ou	Conceptualizing Professional Contribution of Faculty members In
10	Hsin-Ting Wu	University of Taipei
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1/	Dennis V. Madrigal	Demographics as a Variable in Assessing the Quality of Catholic
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	Ah-Fur Lai	Business Intelligence & Analytics System Supports School
19	Miao-Ying Chen	Governance Decision-making - Taking a Municipal University as an
	Yen-Hung Chen	Example
	Li-Yun Chiang	

Poster_1

# The Impact of Critical Development Experiences on the Types of Job Mobility and Career Success

Chien-Chih Weng, Hsin-Peng Shiah Hou, Chin-Lun Tsai

#### ABSTRACT

In addition to the ability to work, experience is one of the important indicators for individuals to achieve future career success during the process of career development. However, for university graduates, there is no clear framework between campus experience, work experience and career development. Without this basic foundation, it will reduce the chances of success for college graduates. Therefore, this study intends to establish a developmental track that effectively explains the effects of experiences on job transfer. This study utilized a sample size of 430 for college graduates after one year to explore the influence of various experiences in jobs on the trajectory of career development.

The research results show that the experience of single job function in the organization and the overall strategic experience in the organization strongly influence the vertical, horizontal and moving trajectory toward the power core, while the cross-functional experience has weaker impact on moving up. This supports the cultivation logic with experience as the core. Therefore, in responding to this main concept, which is based on experience accumulation, the Taiwan University of Science and Technology should strengthen the experience of campus learning, cultural adaptation, scientific and technological innovation, and scientific and technological marketing experience in the school management in order to connect with the need of the future workplace.

Keywords: Job Mobility, Critical Development Experiences, Career Success.



# The Impact of Critical Development Experience on the Job-Transition in the View of Workflow: The Moderating Effect of Industry.

Chin-Lun Tsai, Mei-Chuan Chan, Hsin-Peng Shiah Hou

#### ABSTRACT

Social experience and training is one of the important indicators that individuals can achieve future career success in addition to their work skills. For university graduates, their learning experience is not limited by industry, but career choice is limited by the development of the industry, which makes the job transfer unsuccessful. Therefore, in order to reduce the industrial obstacles of the university graduates' career transition, this study intends to explore effective factors of influence on the transfer, which can break the industrial barriers. A sample of 322 university graduate after one-year work, is utilized to examine whether the career transition barriers of college graduates can be broken.

The research results show that the experiences with single function, cross-functional experiences, and overall strategic experiences in the organization strongly help the break of the industry barrier. Among them, the production, marketing and R&D experiences are the best ones for breaking the industry barrier. Therefore, under the effectiveness of industrial barriers, the universities should strengthen the training and provide the experiences of production, marketing and R&D, which will enable the college graduates to cross the industry boundaries.

Keywords: Job Mobility, Critical Development Experiences, Career Success, Industry Different .



# Concern of Career Opportunity Effect on Career Satisfactions for Information : the Mediate Effect on Career Self-Efficacy

Chin-lun Tsai, I-chi Chung

## ABSTRACT

The smooth transition from school to workplace will be influenced by information infrastructure, which follows Sen (1999)'s position on fairness and justice. It reveals that the information disclosure for career development opportunities and assistance students of successfully acquiring such information is the foundation that enables students to be more consistent in the development of the career path. However, the individual's demand for career information comes from being anxious about the uncertain future but individual also suffers from the scarce source of information. These factors all influence career confidence and effectiveness, which results in a poor assessment of career satisfaction. From a social point of view, it is also the disjoint point of occupation and individual need. According to this study, the career development opportunities focus on the degree of career satisfaction and career information. Through the psychological evaluation of career efficacy, the sample number is based on the graduate survey data, a total of 3329, and the structural equation modeling statistical test is utilized.

The research results show that the satisfaction of career information will be affected by the importance of career opportunities, and through the psychological intermediation of the individual's inner self-efficacy, and the career satisfaction is not directly attached to the career opportunities. The degree of influence, which also proves that to be able to influence the satisfaction of the career, needs to achieve the satisfaction of the career information.

The results of this research can provide feedback to universities, and encourage them to focus on the data of college graduates and establish a career development track. Based on the trajectory, universities can help students develop individualized path for career development, and more importantly, enhance the sense of employment effectiveness in the future.

**Keywords:** Concern of Career Opportunity, Opportunity Structure, Career Satisfactions for Information, Career Self-Efficacy



# Graduate's Cognitive Learning Index to Career Satisfaction : Mediate Effects of Career Compromise

Chin-lun Tsai, Chih- Kaung Tai, Hsin-Peng Shiah Hou

#### ABSTRACT

The problem of youth unemployment is so serious that the gaps and injuries that college graduates encounter during the transition from school to workplace will create a deep impact on them. This is reflected in Tsai & Wang (2015), which is the compromise of the first-time job experience. After experiencing the psychological feelings of education and skill mismatch compromise, it would affect graduates' ability on job performance and their career satisfaction. This study, based on the exertion of basic ability, is influenced by the psychological intermediation of two types of compromises. The sample size is 225, and it is verified by multiple regression.

The research results show that the utilization of complex problem-solving ability will contribute to the satisfaction of career transition and will be affected by two types of psychological intermediaries. The effect of exercise mismatch compromise is the strongest. The results of the study will provide feedback to universities, and the most miserable psychological damage is created by skill mismatch compromise. Therefore, it relies on counseling professionals to provide relevant counseling for the graduates.

Keywords: Career Compromise, Education and Skill Mismatch Compromise, Career Satisfaction



# The Challenge of Occupational Choice: The Endowment Effect

Chin-Lun Tsai, Chia-Chen Li, Hsin-Peng Shiah Hou

#### ABSTRACT

Under the circumstance that getting jobs become more and more difficult, the university graduates will assess their chance of job change more conservatively after receiving the job. Under the view of behavioral economics, the endowment effect, which is an important psychological evaluation mechanism, is based on cognitive psychology. Status quo bias and Loss aversion constitutes a state of mind, and this kind of mental state can be beneficial or harmful to transfer. Most of graduates from top universities can get a good career offer in their first job, but whether the flinching developmental process is harmful or not because of conservative thinking and evaluation, which is an important assessment. A sample of 259 college graduates after one-year work is set to explore how the career choices after college graduation, is influenced by the endowment effect, status quo bias and loss aversion.

The results show that endowment effect, status quo bias and loss aversion all can affect career transition, and they are all negative effect, which shows that the more conservative focus on existing interests and values, and the fear of losing the existing benefits, will be harmful to job switch. Therefore, under the negative influence of the these three factors on career assessment, the universities should strengthen graduating students' attempt in career development, and think about how to help students plan career development in the long run instead of focusing on the immediate interests and loss, which will limit their own development.

Keywords: Occupational Choice, Endowment Effect, Career Compromise, Industry Different .



# Exploring the Mechanism and Effectiveness of Scholarship and Internship on Reducing the Learning Obstacles for Disadvantaged Students

Zhi-Yi Xu and Chin-Lun Tsai

#### ABSTRACT

The inequality among learning opportunities is one of obstacles for learning disadvantaged students. The proportion of disadvantaged students who choose to study in vocational universities is higher than that in the general universities. The national government has long paid attention to allocate resources to help disadvantaged students learn and provide various learning aids. However, can these various aids effectively reduce the obstacles to student learning and improve their learning achievements? It may also require further explorations.

The results of the study show that in the disadvantaged students with scholarships, the learning trend is slowly rising constantly; in the last semester of the senior year, their GPA is higher than the non-disadvantaged students with scholarship. In addition, in the group of disadvantaged students without scholarships, the downward trend of GPA is the most severe one among the four groups, and there is no upward trend among these three groups. In the case of disadvantaged students with internship experiences, their learning trends declines in the second semester of the sophomore year, but there is an upward trend in the next semester.

Therefore, through exploring the awards for the disadvantaged students and their GPA in the single school, it can be found that the acquisition of scholarships has a very high influence on the elimination of learning obstacles. However, the impact of the internship on eliminating learning obstacles has different results depending on the time.



# The Comparison of Differences in Academic Achievements and Employability of Graduates at Art University.

Lu Szu-Cheng, Wang Ching-Yi, Huang Tsui-mei, Chan Hsin-Te

Tainan National University of The Arts

#### ABSTRACT

The purpose of this study was to explore the curren situation of the graduates' academic achievements and employability in art university; it also compared the differences between academic achievement and employability of graduates with different background variables, and the relationship between academic achievement and employability.

The sample of this study included the 101st and 102th year graduates at our university, about 350 students. We collected graduates' background variables, academic achievement, and results of Graduates' Career Destination Survey to conducted a series of comparative studies. In the study of the variables, the graduates' background variables included genders, admission methods and departments. The academic performance included academic achievement, academic ranking, suspension of study, on-campus work and study modes. The employabilit after graduation included searching job time, average monthly salary, job satisfaction, and the degree of consistency between the school's learning curriculum and work. The collected data is then analyzed respectively by statistical methods such as descriptive statistics, t-test, one-way ANOVA, Pearson's correlation and Simple regression analysis.

According to the questionnaire survey results, the following conclusions are obtained in this study:

- 1. Comparing to background variables and academic achievements, we found that there is no significant difference between genders and academic achievement. The admission methods differed significantly on academic achievement, academic ranking and study modes. The departments differed significantly on suspension of study amd on-campus work.
- 2. Comparing to background variables and employability, it showed that departments have significant differences in employability. It also showed that the differences of searching job time, average monthly salary, job satisfaction, and the degree of consistency between the school's learning curriculum and work were different depending on the departments.
- 3. Comparing to academic achievements and employability, according to the overall performance of university students, there was no significant difference in employability after graduation. However, in terms of individual departments, it was found that academic rankings, on-campus work-reading and learning patterns have significant differences in employability, while suspension of study has no significant difference in employability.
- 4. Finally, suggestions are provided based on the research results to be used as reference by art related department students, university and future studies.

Keywords: Academic Achievements, Employability, Art University



# The Collegial Adjustment of International Students in Taiwanese Universities: A Case Study of Longhua University of Science and Technology

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#### Purpose of the proposal and poster presentation

In recent years, because of fewer children in the family, colleges and universities have to recruit international students to make up a deficiency of *insufficient* number of *students*. As the number of international students' increase year by year, colleges and universities have to pay attention to the adaption of them. Schools can take specific practices to assist international students to get used to school life by realizing the problems of their study and life. Taking international students in Longhua University of Science and Technology as an example, the study explores the relationship between international students' school satisfaction (tutor guidance, administrators' service, study-related information, curriculum and teaching, campus life services, facilities and equipment) and collegial adjustment (general adjustment, interaction adjustment, and study adjustment). In addition, this study also explores the relationship between personality traits and collegial adjustment.

### Design/methodology/approach (preferably to be in diagram form)

This study conducted a randomized sampling survey to analyze international students who had stayed in the Longhua University for more than 3 months. A total of 212 valid questionnaires were acquired.

### Findings (preferably to be in diagram / tabular / graphical form)

The major findings were as follows : (1) Participants of the study showed a nearly "average" degree of collegial adjustment and school satisfaction. (2) School satisfaction and personality traits had no effect on general adjustment, but the length of time to stay in Taiwan and the financial situation of international students had a positive significant relationship with general adjustment. (3) Both tutor guidance and campus life services were positively associated with interaction adjustment. (4) Tutor guidance and curriculum and teaching were positively related to study adjustment. (5) There was a positive relationship between emotional stability and interactive adjustment.

### **Research limitations/implications**

The effective response rate of the valid questionnaires in this study is lower (57%) due to difficulty to contact some international students, such as delay graduated and doing enterprise



internship students. Hence, it is suggested that longitudinal research (survey once per semester) can be adopted in future research. Doing longitudinal research not only avoids the problem of causality inference from cross-sectional study, but also solve the problem of low response rate of questionnaires.

Moreover, the prediction effect of Big Five personality traits is not good, because subjects have difficulties in *recognize* the meanings of the scale. It is suggested that other personality traits, such as positive personality, related to collegial adjustment might be used in order to find out the most predictive personality traits in future studies.

### What is original/value of paper?

From the perspective of institutional research, this study explores the impact of international students' satisfaction of school services and environmental on their collegial adjustment. According to the above results, we provide suggestions for schools to assist international students to adapt themselves to life and study in Taiwan. The influence of personality traits on their adjustment can also be used as a reference for recruiting overseas students.





Poster_9

# A New Mission for Center for Institutional Research - How to Improve the Quality of Institutional Data

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### Background

The missions of the Center for Institutional Research (CIR) are to present institutional data with data visualization and to guide institutional research topics. However, data quality problems are seldom discussed. CIR need to check if institutional data is reliable before proceeding these two works.

### **Research purpose**

Data cleaning is a method to evaluate data quality, find the possible errors in the data, and correct the data. For instance, adjusting data format or eliminating outliers. However, some errors in the data are difficult to identify. We ought to classify the types of errors in instructional data, explore the cause of the errors, and propose methods to correct the errors systematically.

### Materials

This study was performed when we generate the tables requested by the Higher Education Institutional Research Multidisciplinary Research Database.

## **Research Method**





## Results

Academic records	number of records	number of columns	number of erroneous columns	number of outdated columns		number of format error columns
Undergraduate departments	5,260	11		1	12	
Graduate departments	1,792	11		1	12	
Personal records						
Undergraduate departments	5,260	12	1			12
Graduate departments	1,792	12	1			12
Admission records						
Undergraduate departments	5,260	11		1	123	
Graduate departments	1,792	11		1	123	
Graduation records						
Undergraduate departments	996	16		123 456	12	
Graduate departments	413	11		1	12	
SOURCE: The Higher Education Ins	stitutional Research M	ultidisciplinary Resear	ch Database - CGU			
Error correction rate	0%-20%	21%-40%	41%-60%	61%	-80%	81%-100%

# **Practical implications**

- 1. We classify the types of erroneous data and the causes of them, proving methods to correct the errors systematically.
- 2. To propose the methods of correcting the errors, the discussions between CIR and administrators are essential.
- 3. We provide up-to-date data regularly to administrators, such as basic information of institutions of higher education.

## **Research Value**

- 1. This research improves the quality of institutional data, and the accuracy of decision-making can be improved.
- 2. The types of erroneous data concluded in this research, and the method of correcting it can be applied by the other CIR when they build the IR data warehouse.
- 3. Having more conversations and discussions with administrators helps CIR gain recognition from administrators.



# Online Course with Click-and-Mortar Practice - Case Study on Blended Learning

#### Yang Liang-Chih

#### What are the reason(s) for writing the paper or the aims of the research?

Blended learning is an educational approach that combines online teaching with traditional classroom instruction and is often used in professional development and functional training environments. However, due to the lack of consistent consensus and insights in the definition, research in classroom teaching has been less frequently proposed, or difficulties have emerged in demonstrating its effectiveness (Oliver & Trigwell 2005). Later scholars pointed out that it is highly relevant to the field practice of curriculum teaching. It depends on the complete planning of learning objects, instructors, and learning situations. The unified concept of general applicability is difficult to define clearly (Moskal P et al. 2013).

#### Design/methodology/approach

This study applies "Task-Technology Fit" theory to examine the tasks of the system and the curriculum, and use the "Self-Decision Theory" to scale up the adaptation of students' self-learning.

The project also tries to invoke the concept of "Click-and-Mortar" from e-commerce, with biweekly on-site and online "blended" learning integration. In this course setting, the content of the lectures itself was mainly based on online courses, with every other week in-class on-site consultation and discussion sessions were held. During the on-site sessions, new optional teaching supplements were provided for the students who are willing to learn more.

#### Findings

In view of the fact that the aforementioned definition of blended learning has not yet been clarified, and the past literatures have mostly explored the substantive courses supplemented by the use of online supplementary teaching or tools, the "Click-and-Mortar" learning allow students to complete all the required tasks such as course study, homework assignments, and classroom tests on-line. For students willing to learn more, new optional teaching supplements were provided for on-site sessions bi-weekly. In this way, it is more achievable for the teaching concept of self-determination and self-learning of the students.

#### **Research limitations/implications**

Future research may focus on the comparison of students' learning outcomes and their assessments by different learning approach.



## **Practical implications**

The results learned from this project will not only provide insights to teachers' teaching methods and strategies, but also improve students' academic achievement.

## What is original/value of paper?

A definition of "Click-and-Mortar" learning was introduced. The aforementioned course setting provides a way of auto-separating the class into basic-level and advanced-level ones; which is made possible by students' self-determination with their own on-site class attendances individually.





#### Poster_11

# Disadvantaged Student Success in College and Employment: Information and Implications for Informed Decision Making

Wei-Ting Chen, Shin-Jen Chang, Chih-Chiang Yang, Meng-Ping Tsuei and Shih-Ching Wang

National Taipei University of Education, Taiwan

#### Background and Goals

In recent years, there has been a worldwide trend to increase and widen access to higher education. Many governments around the world have recognized the important role higher education plays in the development of individuals and society and have initiated several projects aimed at raising higher education accountability. In recognition of the universal right to high-quality higher education without discrimination, the Ministry of Education (MOE) in Taiwan has initiated the Aim for Top University Project and the Higher Education Sprout Project to ensure inclusive and equitable quality education in colleges. While access to higher education and student support services has improved significantly in Taiwan, little is known about whether and to what extent college students from diverse backgrounds benefit from such provisions. The present study was designed to fill this gap by examining the quality learning process of both disadvantaged and non-disadvantaged students from entrance to one year after college. Specifically, the following research question was addressed: Are there differences in access, learning experiences, and learning outcomes between disadvantaged and non-disadvantaged college students?

#### Methods

#### Participants

Participants were 772 first-time freshmen who enrolled in Fall 2012 in one public four-year university in Northern Taiwan. The reason for choosing this cohort is that we wanted to follow students for at least one year after graduation to provide a more nuanced understanding of college impact.

#### Measures

Student data on demographics (i.e., disadvantaged identity and region of permanent residence), access characteristics (i.e., entrance channel, entrance identity, and entrance exam score), learning experiences (i.e., participation in student associations, service-learning, internships, practicums, and career services), and learning outcomes (i.e., suspension, dropout, retention to the sophomore year, cumulative grades, years to degree completion, graduation, post-graduation employment, levels of monthly salary, and job satisfaction) were retrieved from the university's database management system.

#### Data Analysis

To address the proposed research question, a series of independent sample t-tests and chi-squared tests were conducted to determine if students' access to college, learning experiences, and learning outcomes varied as a function of their disadvantaged identity.





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#### Implications

The results suggest that the university's efforts in fostering student success and educational equity and inclusion have been met with positive results. Disadvantaged students benefit from the learning opportunities, resources, and expertise provided by the university. They performed as well as non-disadvantaged students during college years and beyond despite having significantly lower entrance exam scores and cumulative grades. Accordingly, an important next step for policy-makers will be to identify and relax overly restrictive eligibility criteria and quota regulations for disadvantaged students to access higher education.



Poster_12

# Development and Item Response Analysis of the General Core Ability-Scale

## Ya-Han Hsu

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**Background:** Student learning outcome is align with the institutional purpose. The outcome of statements of expected knowledge, skill and dispositions that students must have upon graduation. A reliable measurement tool play an important role to conduct an indirect evaluation of the quality and institutional effectiveness in support of student success for continuous improvement of the institution.

Aims: This study examined the concepts of general core ability scale (GCA-scale, GCAS) and establish the measurement tool. Participants (N = 1671) drawn from a national university in northern Taiwan and completed the research.

**Methods:** According to the literature review and the measurement of evaluating learning outcomes by GCA, we develop a GCA-scale which have 62 items and eight subscales such as "liberal arts spirit", "creative ability", "critical thinking", "developing Autonomy", "civic literacy", "social care", "communication & teamwork" and "international mobility." The partial credit model (PCM) was applied to analyze the data. Under the PCM, there is an assumption that subjects with higher abilities are more likely to score high on the items.

**Results:** The results show that few items have marginally poor-model data fit. Most items are very crucial to measure GCA, they exhibit different degree of agreement. The subject's ability value is between -2 and 5, most of them are between -1 and 1, and the item threshold parameter is between -5 and 3, most of the items are close to the subject's ability. Hence, most items match with the subjects' abilities, little items are over the subjects' abilities, it means subjects don't reflect the competence of some traits. According the mean square (MNSQ), item characteristic curve (ICC), and expected score curve to examine the model fitting, when the infit-value of items are higher, it means these items are too difficult for some subjects, it can be the under-fit or over-fit items. The under-fit items may have unclear content, and we should rewrite specifically. The over-fit items have higher discrimination and should keep it.

**Conclusions**: This result showed that there existed a good reliability and validity in GCA-scale. Also, it demonstrates the alternative method to examine the scale quality, it is more efficient way to detect the poor items and revise by IRT model. Finally, some suggestions are proposed for future usage.

Keywords: General Core Ability, Item Response Theory, Partial Credit Model



# Conceptualizing Professional Contribution of Faculty members In University of Taipei

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One of the crucial duties of institutional research is to analyze faculty members' professional performance in a university. This job is essentially contextualized. It depends on the developmental goal and social location of the university. University of Taipei (UT) is a middle-size comprehensive university. She is now the only municipal university in Taiwan and administered by the Taipei City Government. The social responsibility of UT includes cultivate qualified teachers from K-12 and special education, 43 kinds of athlete, 26 kinds of artistic performers, and urban development professional. The 320 faculty members belong to 5 colleges, including academic researchers, new technology developers, artistic performers, and sports coachers. All of them have 3 core missions: teaching and advising students' learning; research and innovation in their own professional field; service and promotion of urban development especially for Taipei city. This study, conducted by Office of Institutional Research of University of Taipei, tries to establish a proper data system of faculty member' professional performance and apply it in UT.

For establishing such a system, we at first review related system from universities which are similar to UT in professional domain or social location, and list out the data content of professional indicators from government and social common sense. Secondly, we propose a draft scheme of faculty members' professional performance and conduct public hearing from department to college to collect modifying opinion. The system is then established. In fact, this system is ongoing reviewed and modified every year for the rapid changing environment.

There are many cases need to "evaluate" a faculty member in different purpose. Such as, for prizing the outstanding researcher, mentor of internship; for reviewing the submission of project funding; for helping the "left behind" faculty member to be improved. A faculty member's contribution can be regarded as a coded sequence of performance data. It is often that these different purposes of evaluation essentially use the same data but in different value. To evaluate under a certain purpose can be seen as a linear combination of assigned-value corresponding to each data. In order to consider both of quantitative and qualitative meaning of the performance, we apply the 2-dimensional sequence to construct the database. That is, in addition to the data sequence, we add the "level" index on it. The level index is depend on the category and is classified according to the consensus of faculty member in the field.

The data system of faculty member' professional performance in UT is category into 3 domain say Teaching and advising, Research and innovation, and Service and promotion. It includes subcategories of teaching and assessment, students' feedback, students' outcome, professional achievement, and professional service. The system is now applying in regular faculty member evaluation; outstanding faculty prize (researcher, coacher, general education teacher, professional education teacher, mentor of internship; project funding), also use it to find out the potential academic writer, and eliminate misconception in UT.



Poster_14

# Demographics as a Variable in Assessing the Quality of Catholic Education of Augustinian Recollect Schools in the Philippines

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#### **Purpose of the Study**

The Order of Augustinian Recollects (OAR) in the Philippines own and administer five Catholic educational centers in Negros Island. OAR schools promote the intellectual and religious formation of the students with a Recollect brand of education that prepares them for their Christian and professional life. Given the context, the paper intends to describe the level of quality of Catholic education of OAR schools as assessed by school personnel in the light of the Philippine Catholic School Standards (PCSS) framework. Specifically, it aims to determine whether the school personnel demographic variables correlate with their quality assessment.

#### Methodology

A descriptive-correlational research design was used to describe the level of quality of Catholic education of five OAR schools in the Philippines according to the PCSS framework in terms of Catholic identity and mission, leadership and governance, learner development, learning environment, and operational vitality. The total population of 198 administrators, teachers, and non-teaching personnel were the respondents. The standardized PCSS Questionnaire was used to gather data. Data were analyzed using Mean, chi-square test of independence, and Spearman rho.

#### Findings

The overall assessment of the level of quality of Catholic education in OAR schools was rated by school personnel as "exceeds the benchmark." It indicates that OAR schools demonstrated excellence and effectiveness in the domains of quality Catholic education. On the other hand, the results show how the school of origin described by type based on school size and the designation of school personnel are significantly related to how they regard the operational vitality of Recollect schools. This further means that the type of school—a bigger school for that matter—and the position of school personnel—usually the administrators—influenced their assessment of the quality of Catholic education due to their familiarity of and experience in the OAR schools.

#### **Research Limitations**

Considering the limited scope of the study, future researchers may replicate the study in other OAR Schools in the Philippines. They may also explore the dominant factors affecting the quality of Catholic education in OAR schools.


#### **Practical Implications**

Given the evidence of the correlation between demographic variables and quality assessment of Catholic education, the enhancement of the professional and spiritual development and induction of school personnel as partners in the educational apostolate is critical. Likewise, school administrators may rethink the salary and benefits package for school personnel to attract and maintain excellent teachers.

#### **Original Value of the Paper**

The research contributes to the dearth of studies on Catholic education in the Philippines, particularly on the quality of Catholic education in OAR schools. Also, the findings of the study may provide a basis for designing a comprehensive educational plan for OAR schools in the Philippines, integrating the domains of Catholic education.



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## Eligiosity and Spiritual Well-Being of Catholic Senior High School Students

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#### **Purpose of the Study**

Relating to God or other higher powers constitutes a basic human need which is expressed through some forms of religiosity and spirituality. Spirituality refers to the individual experience of transcendence and meaningfulness. On the other hand, religiosity is usually identified with beliefs, worship, and morals of structured religious institutions. Religious education in Catholic schools can be a potent approach to develop the spiritual and religious aspects of students in the context of integral human formation. Given the context, the paper intends to describe the religiosity and spiritual wellbeing of Catholic senior high school students of a rural Catholic college in the Philippines when compared according to sex, grade level, religious organization membership, Church ministry involvement, and Mass attendance. Also, it determines the correlation between religiosity and spiritual well-being.

#### Methodology

A descriptive-comparative and correlational research design were used to describe the extent of religiosity and degree of the spiritual well-being of 250 Catholic senior high school students of a Catholic college in the Philippines. They were identified using a stratified random sampling method. A validated and reliability-tested researcher-made questionnaire on religiosity and spiritual well-being scale were used to gather data. Mean, Mann Whitney U test, Kruskal-Wallis, and Pearson r were used to analyze the data.

## Findings

Catholic senior high school students demonstrated a very great extent of religiosity and moderate spiritual well-being as adolescent Catholics. On the other hand, demographics such as grade level, religious organization membership, Church ministry involvement, and Mass attendance significantly influence the religiosity and spiritual well-being of respondents. Also, religiosity is linked with spiritual well-being. The findings signify that the more Catholic senior high school students adhere to and observe the doctrines and practices of the Catholic faith, the more they grow and mature in their personal experience of God and achieve a sense of life satisfaction and purpose.



### **Research Limitations**

With the limited scope of the study, future researchers may conduct the study in other Catholic schools with the inclusion of other relevant variables. They may also delve into the factors affecting the religiosity and spirituality of adolescent Catholics and their lived experiences.

### **Practical Implications**

Given the evidence of the link between religiosity and spiritual well-being, the findings may provide an impetus for Catholic schools to rethink their religious and spiritual formation programs to be relevant and responsive to the needs of varied learners. Likewise, they may also consider establishing partnerships with churches to provide opportunities for students to enhance their knowledge of their faith and participate in religious and spiritual activities.

### **Original Value of the Paper**

Considering the dearth of studies on religiosity and spiritual well-being of young Filipino Catholics, the study significantly contributes to the few existing literatures on the subject. Besides, the findings of the study may serve as a basis for designing a school-based religious education and spiritual formation programs.





## Faculty Research Production Capacity: A Review and Influencing Factors

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#### ABSTRACT

Internationalization and university competition have caused universities to commit to attaining international standards, a component of which is reviewing faculty production capacity. Therefore, the Human Development Reappointment, Tenure, and Promotion Committee developed the multiple productivity indicators, mentioned by Peng (2006), of university academic researchers in the United States between 1999 and 2000.

To integrate factors of the research regarding "teaching, research, and service" during the multiple productivity indicators and the related literature of the impact of university teachers on research productivity, this study proposes three purposes for this research: (1) To provide academic manager listing factors that influence production capacity for school teachers. (2) Review the faculty production capacity data. (3) Based on conclusions drawn from the data, propose appropriate reference directions.

Keywords: Faculty Research Production, Influencing Factor of Research Production, Institutional Research



# Development of Freshmen Exploratory Project Courses to Promote Providence University Freshmen's Learning Adaptation

Ya- Ching Fan, Chia-Chen Lin, Chih-Wen Cheng and Ching-Yi Lai

### Purpose of the poster presentation

Based on previous institutional research (IR) in Providence University, a learning feedback survey for freshmen after they enrolled in one semester, the results indicated that the freshmen were not wellidentified and not well-adapted with the department. Therefore, the departments develop the innovative curricular to improve the freshmen's adaptability. The innovative curricular namely freshman exploratory project (FEP) courses are problem-oriented and provide freshmen with access to the department's learning resources and an environment to practice hands-on learning. Through problem-solving, hands-on experience, collaborative learning, and completion of all facets of the learning process through a project, students can develop their creativity, problem-solving skills, and teamwork skills and be motivated to learn, adapt to the university instruction and learning model, and enhance the identification with the department. This study developed FEP courses and FEP course learning feedback questionnaire (FEPCLFQ) to investigate the learning adaptation and ability in these freshmen.

## Design/methodology/approach

In this single-group experimental study, the participants were 830 university freshmen from 19 departments of 6 colleges. Each department designed an FEP course. An FEPCLFQ was developed to then investigate the learning adaptation and ability of the students containing six subscales—namely learning motivation, learning attitude, self-efficacy, problem-solving ability, collaborative learning, identification with the department—evaluated on a 5-point Likert's scale; its Cronbach alpha was 0.89. Quantitative data, mainly comprising pre-test and post-test FEPCLFQ results, were collected and analyzed. The pre-test scores were used to assess the differences in entry behavior of participants. Pre-test and post-test FEPCLFQ scores were analyzed through descriptive statistics and a paired sample *t*-test.

## Findings

The results indicated that after treatment of FEP courses, a significant mean difference existed between pre-test and post-test scores of FEPCLFQ (t = 6.90, p < 0.001) and the effect sizes was medium to large (Cohen's d = 0.55). The results confirm that the learning feedback of participants, including learning motivation (t = 5.372, p < 0.001), learning attitude (t = 3.922, p < 0.001), self-efficacy (t = 4.260, p < 0.001), problem-solving ability (t = 4.260, p < 0.001), collaborative learning (t = 7.041, p < 0.001), identification with the department (t = 4.236, p < 0.001) performed better than entry behavior.



#### **Research limitations/implications**

This study has a limitation: only one-third freshmen participate in the study and sample from only one university in Taiwan. Thus, our FEP course should enroll more undergraduate students to ensure the course effectiveness and facilitate the development of appropriate programs and curricula for university freshmen's learning adaptation.

#### **Practical implications**

The FEP courses design may aid in expanding and enriching interactive learning opportunities in students. Moreover, FEP courses provided students with an opportunity to interact with each other through mechanisms, such as group discussion and hands-on activity, to develop problem-solving skills, learning motivation, learning attitude, self-efficacy, collaborative learning, identification with the departmen.

### What is original/value of paper

Courses development and design of school-wide for freshmen in different departments to adapt learning methods in university are rare. We developed the research instrument FEPCLFQ to investigate course effectiveness through participants feedback.





# Applying English Movies for Enhancing Vocational University Students' Learning Motivation in English Courses

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## Purpose of the proposal and poster presentation

Although nowadays there are a lot of audio-visual English learning materials, most vocational university students are still lack of interest in English Learning. Students might watch English movies and listen to music to gain pleasure, but few of them employ these tools to better their English ability. Therefore, this research was conducted for enhancing English learning motivation of vocational university students ; moreover, it helped instructors find effective methods to raise students' interest of English learning. In shorts, the purpose of this research is for better interactions between instructors and students by using extra audio-visual materials like English movies And having better interaction with students will make instructors know how to assist students on English learning; meanwhile, the students will likely become active learners.

### Design/methodology/approach

In this research, the instructor employed both English movies and traditional textbooks as teaching materials to see how English movies and traditional textbooks affected non-English majors' English learning motivation. By doing so, students were expected to become active learners. The research adopted an **interactive teaching method**. That is, students' reaction with the instructor and feedback were valued. In this research, the instructor employed not only a textbook, *Essential Reading* but also three English movies Miss Congeniality, Taxi, and Along Came Polly in English courses in National Formosa University.

The research was carried out in two English courses. **Class One** was composed of 50 third-graders in which instructor merely lectured to students with *Essential Reading*. **Class Two** composed of 52 second-graders, the instructor not only employed a textbook book but also played the movies in this course. Each movie was divided into three sections and was played in the class.

The final grades were evaluated by their participation in discussions and their written exams.

## Findings

The following chart indicates 2-graders which appreciated English movies in class have more students gain higher scores. And there are close number of students whose final grades under 60. Therefore, this research suggests that adding movie appreciation in the course does enhance students' motivation of learning English; moreover, they do gain better grades and have better performance.

## **Research limitations/implications**

The research limitation can be discussed in three dimensions, teachers, students, and time. Firstly, there were no professional textbooks related to English movies. Therefore, the instructor needed to



spend a great amount of time on making the link between the traditional textbooks and English movies. Although there were some textbooks combining English movies and reading available, they provided only simple translations and vocabulary lists. That is, those textbooks were not designed for university students to improve English but rather for beginners or people who wanted to read for pleasure.

Secondly, there were some students who had no basic English listening comprehension. Learning English by watching English movies might be extremely hard for them to acquire new words and phrases by merely watching movies because they might focus too much on reading Chinese subtitles without trying to listen to dialogues in the movies. In contrast, it was hard for those who had already have a good command of English to enhance their English listening comprehension by merely movie appreciations, because conversations in the movie might be too easy for them. In other words, advanced learners require more serious listening materials such as speeches and news. In short, using English movies as teaching materials might have better result on intermediate-level students. Third, there were limited time to for instructors to finish teaching both textbooks and the related materials concerning English movies.

#### **Practical implications**

Generally, vocational universities in Taiwan provide non-English majors with an two-hour class. Thus, the instructor needed to finish both reading materials and English movies within limited time. In order to help students gain better understanding to the textbook and the movie, instructor encouraged students to preview the assigned parts in the textbook and the give materials related to movies. The class was divided into two sections. In the first section , the instructor taught the textbook and gave some open questions about the movie. By doing so, students were expected to think wider and deeper. Most students expected to the movie that the instructor was going to play. The movie was generally played in the second section. In practice, the movie cannot be finished in one week and usually last for three weeks because of their length. Therefore, most students expect to know the plots in coming weeks — and would like to read more articles related movies on their own. The instructor also provided students with vocabulary lists and articles after movie appreciation. By doing so, students had deeper impressions on the key words / plots in the movies. Moreover, the key words and plots were put in exams, which would help students review what they read and watched. Their final grades and questions does indicate their improvement in English and most students felt that they liked learning English by watching English movies.

## What is original/value of paper?

This paper would like to give instructors new ideas of applying English movies to raise the motivation of English learning. In the past, the movies were considered as improper, non-serious, entertaining materials. Therefore, most school did not use it as an audio-visual materials for English education in universities. However, the movie itself does provided some cultural, historical backgrounds that students were hard to experience in their own countries. Thus, by watching movies, students not only learned the way the native speakers talked but also broadened their horizons. Further, movie appreciation in class can enhance the interactions between teachers and students, which were rarely seen in English courses in vocational universities.



## Business Intelligence & Analytics System Supports School Governance Decisionmaking - Taking a Municipal University as an Example

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With the development of technology, all industries have begun to pay attention to big data analysis in recent years. It is expected that the results or predictions of data analysis can assist managers make the decisions quickly in policy formation. How to transform relevant data and information to usable analytics, and then promote them to knowledge in decision-making, it requires the proper planning of data warehousing, online analytical processing tools, data exploration and visual interactive tools to integrate into a business intelligence analysis system. By using the results of the analysis, managers can optimize the performance of the organization, also make the prior plan in sustainable development policy.

In higher education, with huge amounts of data in the school administrative system, how to conduct tiny data to valuable analysis, and then respond to decision-makers, is the core applicative value of institution research.

This study takes a municipal university as an example, there are only 7500 students belong to 5 colleges 34 departments; however, they cultivate many professionals, including education, art, athletics and city management. For the purpose to make the school policy more forward-looking, the school started to construct the institutional research (IR) system since 2015. They faced the stages about data inventory, data cleaning to data warehousing. Finally, they decided the 3 main analysis issues focused on the performance of student, including source, status and learning outcome. Those issues were composed by 4 main data tables, 7 reference tables, 204 analysis fields and 26 measures. The system is also combined with the online analytical processing (OLAP) tools and Microsoft Cloud Service. So far, the system submitted 37 reports designed by Microsoft Power BI to management. Departments can examine the changing about figures over 5 years.

Those 37 reports are made by Microsoft Power BI tool which connected to the IR database. Each report can be examined by school year, school semester, departments, also other different dimensions. Reports can show the changing about student source, status and student learning performance since 2013 which the school transformed, also those reports are real-time interaction with users. Decision makers can evaluate long-term data changes from different reports and give feedback to school enrollment strategies and teaching improvement measures.



The outcomes of the specific results are as follows:

- 1. According to the performance of students from different entrance-paths, it can provide departments references to distribute enrollment quota from different entrance-paths each year. It also can help departments to cultivate more adaptable students.
- 2. Refer to the source school and the location of the freshman, to analyze the county, city and high school of students from each department. It can help departments to find out the highest enrollment possibility in those senior high schools of freshman. Departments can use the data to concentrate on specific schools to attract students.
- 3. Through the analysis of the score of the compulsory courses, the supervisor of the subordinate unit will review the teaching quality of teachers and the performance of students. Supervisors can assist and adjust them directly.

In summary, develops suitable data analysis topics and uses business intelligence analysis to plan the institution research system, supplemented by interactive data visualization bi tools. Decision makers can quickly review the results of any issue and recognize the meaning of numerical value to assist in the formulation of the school development strategy. In the future, the school will continue to develop and expand the analytical dimension and measures, in order to create a well-considered and forward-looking school management decision-making system.





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中、台南設有分公司,多年來致力將 CAD/CAM/CAE/PLM 等軟體銷售、 實務輔導、客製化程式開發,及解決方案整合經驗,為廣大的產業客 戶,提供專業顧問諮詢與服務。另為因應資訊軟體技術發展與產業應 用需求新趨勢,於 2017 投入並建立完整專業團隊,全力推動達梭 系統 EXALEAD 一站式大數據智能應用開發平台,為各產業客戶提供 敏捷彈性優異之大數據智能應用解決方案,以更低的經濟效益成本, 益助客戶數位轉型以提升運營績效,進而創造更勝一籌之競爭優勢。 EXALEAD 大數據智能應用開發平台優異強大的技術功能,能協助高 校在大數據時代,以更低的總體擁有成本與更高的經濟效益,提供高 校於短、中、長程校務發展、管理、評鑑等複雜作業所需之校務大數 據整合平台,打造智慧校園應用暨校務決策支援中樞資訊系統,敏捷 整合校務發展規劃決策與審核績效,所需之多元校務大數據智能,達 成提升治校興學質量與績效之目標。























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