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EDITORIAL

Warm greetings to you our loyal readers.

As we all have noticed, over the last year or so there have been many and rapid development in education generally and in higher education specifically. You only need to browse or '*surf*' the net and you will no doubt strike many new websites dealing with some aspects of education as well as increasing number of papers on aspects of teaching and learning all of which constitute *Institutional Research*.

It is heartening to notice that quite a number of these papers originated from developing countries that have been struggling to transform the obsolete but entrenched teaching and learning style of *rote-learning* or learning by memorization. Slowly but surely changes are happening even there. Several universities in Malaysia and Indonesia for example had formally declared in their academic operations documents to be practicing *e-learning* and *student-centered learning*. It is a start even if there are inevitable variations in the understanding of those terms. In this edition we see an eclectic collection of such works that show the wide coverage.

In line with furthering and sharing *Institutional Research* in Southeast Asia, the SEAAIR Executive Committee at its meeting in September this year approved the publication of the third JIRSEA issue annually starting this year. This publication will contain *The Best Paper* and five *Outstanding Papers* selected at the annual SEAAIR international conference of that year. These papers undergo an elaborate series of reviews. The process of reviewing SEAAIR conference papers comprises firstly of reviews of the *Abstracts*, followed by reviews of the *complete paper* and then of course the critiques at the paper *presentation* at the conference itself. Papers that finally made either the status of *Best* Paper or *Outstanding Papers* would have gone through another review by the SEAAIR Executive Committee.

Before the publication of these papers, JIRSEA Editor invites their authors to revisit their papers and where appropriate incorporate feedback and inputs from the conference presentation without substantially changing the presented papers. This third JIRSEA issue for this year is scheduled to be available online before Christmas.

It is hoped that in addition to better awareness and dissemination of IR in the region, it would also attract a lot more researchers to submit papers to SEAAIR conferences in future. The quality of papers is also expected to significantly improve knowing that they are contending for two *awards* that would be recognized in their respective home institutions and would raise their institutions' reputation that in turn will bring other rewards.

Keep a lookout for our *new* third issue of JIRSEA in the year and happy reading of this edition.

Nirwan Idrus
Editor

INNOVATIVE ASSESSMENT STRATEGIES IN HIGHER EDUCATION

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Abstract

Assessment is an integral part of academic practice models and by no means the easiest from a pedagogical perspective. Assessment can change the student's perception and attitudes towards learning and consequently the way in which they manage their curricular expectations and further career development. Learning outcomes indicate what is expected of students, help staff plan the delivery and provide students and employers with descriptors of the levels of knowledge and skills achieved. The challenge of any assessment method is to measure with rigour and fairness the level to which learning outcomes have been met. This communicates to students and employers, a sound mechanism for comparing the quality of the educational experience. The research aimed to design and implement an assessment model that recognises individual contributions of students within a team based on the work of the International Personality Item Pool (IPIP). The question being asked in this research was: "can the work of the International Personality Item Pool which measures Personality and Other Individual Differences be used to express an innovative, rigorous and fair assessment process of individuals and teams so that students are better prepared to develop their own careers mirroring the way individuals work in teams". The methodology proposed recognises, measures and rewards the contributions of individuals, teams and teamwork efforts associated with engineering and technology business tasks as part of a career development and employability program. The research showed that through empirical and scientific methods that the proposed principles are a sound representation of an innovative assessment model that is rigorous and fair as it is based on scientifically proven constructs by the scientific

community which enables academic practitioners to enable students career development within their academic study.

Keywords: Employability, Career Development, Lifelong Learning, Critical Thinking, The Apprentice, Student Confidence

Introduction

The Career Development and Employability (CDE) framework is an innovative academic practice concept for teaching, learning and assessment of undergraduate students' career development and employability skills within a unit of study, (Ponciano & Koh, 2016). The CDE concept is designed to provide students with knowledge and understanding of the theory and practice of project management and develop students' career skills ready for the employment markets. Project management techniques are applied to the development of engineering and technology projects. Students work in teams and develop both individual, team and business task personality traits. Alongside this, students develop their ability to think critically and with emotional intelligence coupled with behavioural interviewing techniques. The rigorous assessment of CDE is also determined by the demonstration of soft skills such as those defined by the emotional intelligence quotient, for example, critical thinking and interpersonal skills. These skills fit into the 'how to think' category and are comprehensively more challenging to assess in a student. The social context of CDE in academic practice, proposes an innovative and motivational framework for the development of students' CDE skills which is based on the reality TV show, The Apprentice ™, and was outlined in (Ponciano & Koh, 2016).

Assessments, from a student's perception, affect them in their learning life, and yet most of the students agree that they are in the dark on what goes in the minds of their examiners or assessors. As such, not having total understanding on the assessment process may affect students perception and attitudes towards the learning process, and in some cases, affect the way in which they manage their curricular expectation and further career development.It is the ability to develop a confidence in the learning outcomes that will enable a student to apply for certain careers as s/he will possess the necessary knowledge and understanding of a particular academic area.

Many Higher Education Institutions (HEI) use Outcome Based Education, (Memon, et al., 2009) (Quality Assurance Agency, 2000). The learning outcomes philosophy involves the specification of academic programmes that are compliant with, subject benchmarks, and the local HEI policies. At a lower level, learning outcomes indicate what is expected of students, help staff plan the delivery and provide students and employers with descriptors of the levels of knowledge and skills achieved. The challenge of any assessment method is to measure with rigour and fairness the level to which learning outcomes have been met. This will help students and employers to reach a common understanding on the assessment mechanism for comparison of the quality of the educational experience.

The assessment of career development and employability is also about choosing appropriate assessment techniques that will engage and motivate the students in the learning activity. However this process is of a very challenging nature (Knight, 2008). The assessment of the hard skills (IQ) is a logical process which concentrates on evaluating 'what to think' to determine if a student has acquired the necessary knowledge structures of a subject discipline. The idea of the assessment is illustrated in Figure 1.

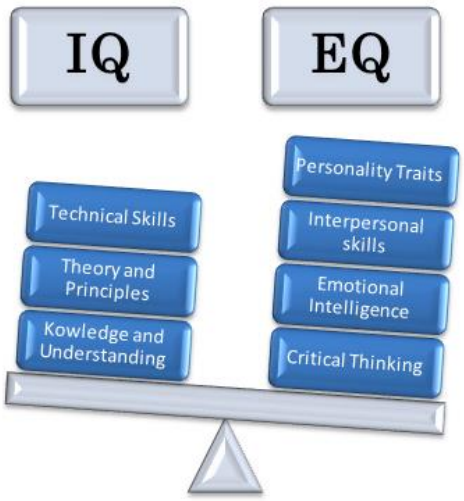

Figure 1: Employability and soft skills vs hard skills

Available literature and (Clayton, et al., 2003) propose four key models for the assessment of employability and career development summarised in the following Table 1.

Table 1: Models for the Assessment of Employability and Career Development

Assessment Model	Description
Inferred	Evidence of CDE skills is inferred from performance in technical subjects.
Parallel	CDE skills are taught and assessed separately.
Separate Tasks	Not only are the assessment tasks separate, they are specific to the CDE skills in question.
Integrated	Inference is drawn from across groups of subjects

While the models presented are indicative of how to go about planning assessment they are not suggestive of the techniques to employ, however, they help the academic practitioner make some early decisions on how to apply the CDE stimulus to their subject discipline.

A wealth of assessment techniques that are relevant to CDE are reported in the work of (Knight, 2001). However, in order to decide which methods are best suited to their cohorts of students, practitioners need to identify which model of employability their HEI is using – as best institutional practice can be more resource efficient; evaluate which model of employability best

matches their subject discipline or programme learning outcomes and finally which techniques will stimulate and motive students' learning.

The decision of whether to use formative or summative assessment for each technique is one that should be taken on the basis of the balance of the full assessment diet of the programme and level of study. Although summative assessment is often taken more seriously than formative, the key is to create meaningful dependencies between formative and summative assessment that will enable full engagement in assessment by the student. While routine assessment techniques, such as examinations, are best suited to asses IQ skills, because they assess knowledge and understanding, EQ skills develop slowly with the individual through a set of behaviours. As we see the shift towards a more EQ based CDE assessment practices we need to include techniques that can reflect the acquisition of skills for lifelong learning. These techniques currently include, among others, personal development plans, portfolios and self-assessment. Figure 2 shows and overview of the CDE assessment process Philosophy.

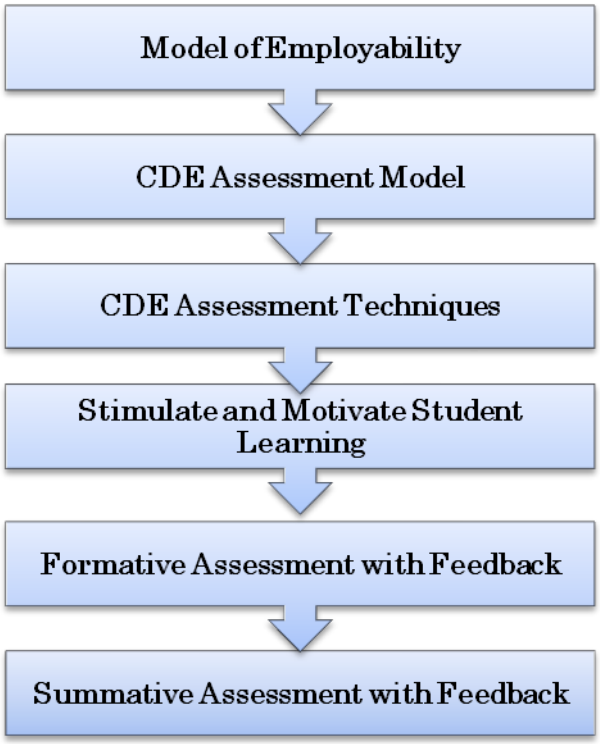

Figure 2: Overview of the CDE assessment process Philosophy

Feedback is instrumental and non-differential to the assessment of both IQ and EQ skills and independent of the mode of assessment. In Employability and Assessment (Knight, Employability and Assessment, 2001) feedback has been identified to have the following characteristics. Purposeful, that might include correction of errors, development of understanding, promotion of generic skills, development of metacognition and the maintenance of motivation. Related to the degree of achievement of the set learning outcomes, that helps learners to see the goodness of fit between judgements and their work. Timely so that students

can respond to it with the work fresh in their mind and in time to act on it before tackling another similar task. Appropriate, in relation to students' conceptions of learning, knowledge and the discourse of the discipline. Understood, to help students' development of their IQ and EQ skills.

This research work follows an innovative and motivational framework for the development of students' CDE skills based on the reality TV show, The Apprentice ™. A rigorous and fair assessment model that recognises individual and team based contributions to teamwork, based on work of the International Personality Item Pool (IPIP), is presented. The research work carried out follows an action research philosophy with ethnographic and phenomenological components. Both the CDE framework and the IPIP based assessment model study are qualitatively and quantitatively evaluated from a sample of 58 participants in the context of the student experience. The validity of the methods in academic practice and their substantial contribution is asserted to enhance the student experience by increasing student motivation and engagement as well as the open systems approach of the methods to fit with other academic subject disciplines

Assessment and Feedback

Through an analytical process of staged selection we have contracted the index of 204 labels for 269 IPIP scales into 24 personality scales and catalogued them into three categories addressing areas of development required by current career development and employability criteria. This was an empirical process based on current job and person specification trends. The CDE chosen 24 personality scales and traits are shown in Figure 2. The personality scales selected describe accurately The Individual, The Team, and The Business Task categories in the context of teaching and learning Engineering and Technology undergraduates. For every personality scale used, the IPIP item descriptors were adapted to avoid duplicate descriptors and to reflect the application within the CDE themes through the model of The Apprentice™. The descriptors of each scale are presented in terms of the positive and negative behaviour patterns by a variable number of items.

The IPIP is a scientific collaboration for the development of advanced measures of personality and other individual differences (Goldberg, et al., 2010). Two scales, "+keyed" and "-keyed" are used, where items '+keyed' describe positive patterns of behaviour present in the category whereas items of '–keyed' describe negative patterns of behaviour or that the behaviour is not present in the personality. For example, the Conscientiousness scale used to define individual behaviour is described synoptically in Table 2.

Table 2: IPIP Scale for Conscientiousness

+ keyed	– keyed
• Accomplish my work on time. • Do things according to a plan.	• Neglect my duties. • Put off unpleasant tasks. • Am often late to work.

Figure 3: CDE Personality Categories and Traits

The Likert's Scale and CDE Points

The assessment process for each personality scale is via in-class observation between the individuals within a team and the facilitators. A group of three facilitators observe the identified behaviours according to the defined personality scales during the observation stages of every business task. Each facilitator specialises in a single CDE category throughout the Business Tasks.

During the Observation Sessions the facilitator, who is knowledgeable about the items that define the positive and negative tendencies of the personality scales assesses the level of propensity of the Individual, the Team or the Business Task towards a single rating on a Likert's style scale for every personality scale.

The assessment of the Business Tasks uses a scale from -2 to 2 where:

-2 = strongly disagree to the concept
-1 = somewhat disagree to the concept
0 = undecided, behaviour not evidenced
1 = somewhat agree to the concept
2 = strongly agree to the concept

The Likert's scores are converted into points for every Individual, Team and Business Task and designated as Career Development and Employability points. The maximum CDE points accrued by the three personality categories that describe the Individual, the Team and the Business Task are as follows.

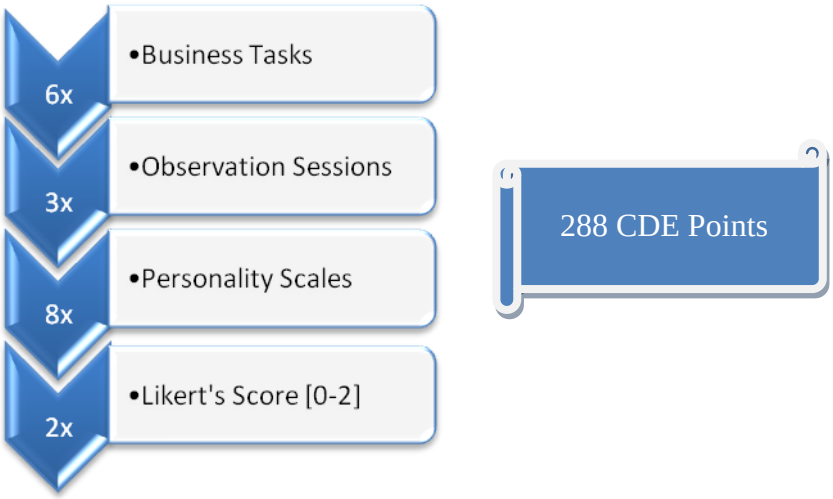

Figure 4: Method of calculating CDE points. Students Develop 6 business tasks, during 3 observation sessions, using 8 personality scales and receiving points on a Likert scale from -2 to 2.

There are 288 CDE points for each of the category; hence 864 CDE points will be collected.

Assessing the Individual

Week upon week individuals can/should improve their scores by reflecting on their behaviours of work and modifying these as appropriate to their personal and professional development. For example students can improve "reflection" by showing the '+keyed' traits: "I can demonstrate that I reconsider previous actions, events and decisions or that I am careful to collect people's opinions". The CDE points assigned to the individual category are unique for each individual in accordance with the IPIP scales used.

Assessing the Team

The personality scales used to measure the behaviour of the team are reflected as group CDE points. This means that all individuals will score the same CDE points against a particular item on the Team personality scale. We have assumed, as the team is a body of individuals that share the same goals that we can treat it as an individual body and thus talk about its personality and derivative behaviours.

The total scores associated with this category and with the Business Task category are added to show the weekly team performance and to stimulate competitiveness between teams.

Assessing the Business Task

The assessment of a Business Tasks is identical to that explained for both the individual and the team but assigned on a team basis for every IPIP scale defined as part of the Business Task. As there is no such thing as the personality of the Business Task, what the facilitator is looking for is the levels of success in the planning and execution of the user requirements.

The personality scales have been carefully chosen to represent items that are relevant in assessing a business task. In a nutshell, as the Business Tasks are planned and executed by teams of individuals and we can talk about the personality of an individual, transitively we infer that the personality scales can be used to analyse the success of the planning and execution of a business task.

The Job application Process

The Job Application process is the first stage of the CDE model. A reality adapted job and person specification is presented to students to recreate a learning environment where students are exposed to recruitment and selection conditions. The Job Application process is defined as a summative learning activity taking place in induction week. The activity is marked using academic criteria aligned with the taxonomy of assessment domains for undergraduate level six study as shown in Figure 5. A flag indicating of short listing is also used to indicate to the student if he/she would have been shortlisted for the position had this process represented a real job application.

Figure 5: Job Application Marking Criteria

The activity requires the production of four deliverables; a Covering Letter, Curriculum Vitae, an Application Form and a Job Application Statement. Each of the deliverables is aligned with current job application practices.

The Covering Letter exposes the students to the art of writing professional covering letters required by any job application process. This enables students to put into practice, writing to introduce themselves and summarising the motivation and justification for a job application

The Curriculum Vitae sub-activity enables the students to review and improve on their Curriculum Vitae to a professional level that is acceptable by the professions to which they wish to embark upon.

A job application form of the is used in the application process to help raise students awareness to the level of personal and professional detail required in standard job application forms, including an application statement.

The Application Statement is one of the most important parts of the Job Application process. Students write a statement describing how their knowledge, skills and experience meet the job specification and how their personal characteristics integrate within an organization.

A series of digital videos are presented to the students to guide them through what is currently known as best practice of the complete job application process.

Behavioural Interviews

In parallel with students work on their business tasks we introduce them to the Behavioural Interview skills technique. Behavioural Interviewing is increasingly popular with employers and is based on discovering how an individual acts in a specific employment related situation. The rational for the technique is based on the premise that the way individuals behaved to situations in the past predicts future performance. The Behavioural interview CDE training programme starts with the presentation of the technique with a digital video followed by subsequent group practice. A comprehensive list of 165 behavioural interviews questions, of which a sample is shown here, is used by students to interview each other:

- *Which is more important: creativity or efficiency? Why?*
- *What have you accomplished that shows your initiative and willingness to work?*
- *What was the toughest challenge you've ever faced?*
- *What two or three things are most important to you in your job?*
- *Give me a specific example of a time when you used good judgment and logic in solving a problem.*
- *By providing examples, convince me that you can adapt to a wide variety of people, situations and environments.*
- *Describe a time when you were faced with problems or stresses that tested your coping skills.*

This activity is formative and the facilitator gathers feedback from all groups and shares it, in class, with all students. Each group holds up to five students and two interview candidates from the group subject themselves to the process. In one of the interviewing rounds a student is asked to challenge the panel of interviewers in a formal way. This enables the interview panel to experience the difficulties that interviewers face in making the right choice of candidate.

Upon training, students are scheduled to their individual Behavioural Interview. The activity is coordinated by a panel of behavioural interviewers and takes place in 3 stages lasting a maximum of 20 minutes.

In Stage 1 the student presents a 2 minute presentation headed:

"*Solving the challenges Lecturers face in teaching students in higher education.*"

In stage 2 the interviewers will question students for a period of 15 minutes based on their job application using behavioural interviewing techniques. The interviewers aim is to ensure that students are able to demonstrate the technique and given them real preparation for a real interview. In the final stage the panel of interviewers give the student verbal feedback.

The behavioural interview is summatively assessed using the criteria proposed by the job specification as shown Figure 6.

Figure 6: Behavioural Interview Marking Criteria

The taxonomy of assessment domains addressed by the behavioural interview activity are:

Technical Skills
Organisation and Planning
Communication
Data Collection and Interpretation
Analysis and Critical Reflexion
Synthesis and Evaluation

Feedback to Students

In CDE student feedback is designed to encourage participation and the development of technical Engineering and Technology knowledge and skills. The Observation Sessions via the academic facilitator is significant examples of the importance of feedback in CDE. CDE also provides the student with qualitative and quantitative written feedback from a variety of sources, which includes the facilitator.

Every piece of summative work receives written feedback relating to the different marking criteria and a mark in a percentage scale. The Pitch and Boardroom guests' reports are available to all students for consultation. Individuals and Teams are advised to read and reflect on this feedback and to use it throughout the development of subsequent Business Tasks and in the successful individual achievement of the Personal Development Plans (PDP) and critical review assessment.

A final and original way in which the CDE framework provides students with prompt and weekly feedback which stimulates competitiveness through their studies is via the dissemination of charts and reports of indicative performance for individuals and teams. The graphical

feedback provided at the end of every Observation Session is based on the CDE personality scores achieved by Individuals, Teams and the work on the Business Task. At the end of every task students are also sent their personality scales individual feedback. Figure 7 shows an example of the CDE scores achieved by every team at the end of a three week observation cycle. This information stimulates team motivation and competitiveness as teams try to win the task prize.

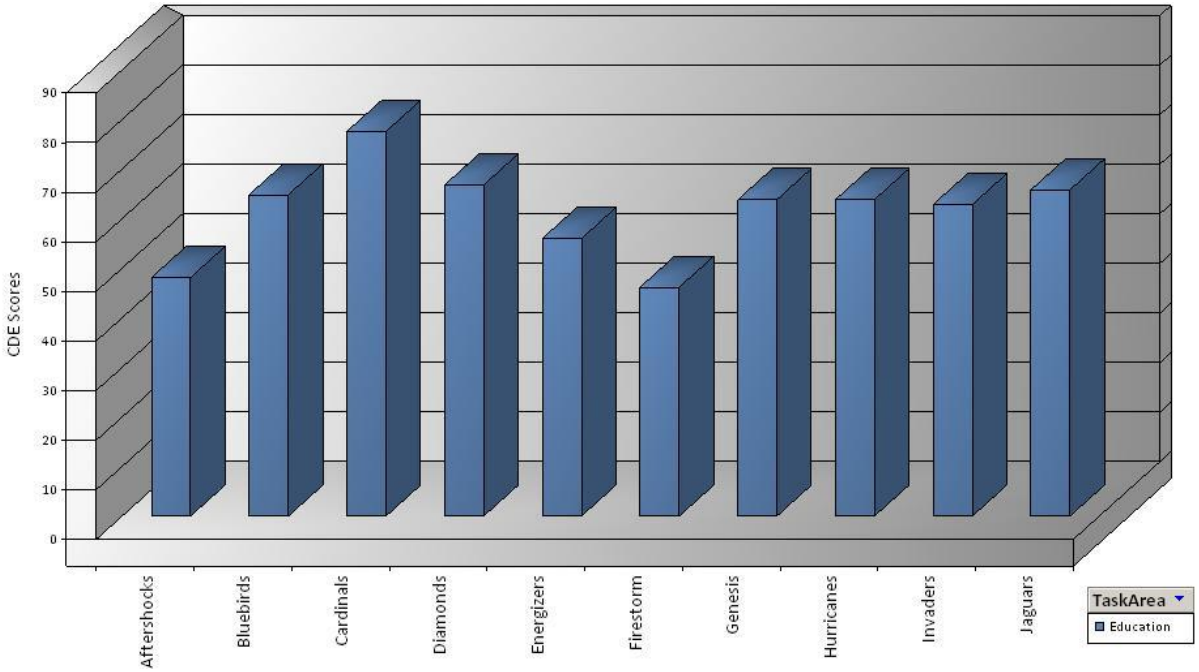

Figure 7: Team Competitiveness chart (Teams names are shown in the x-axis)

The breakdown of the composite CDE score for a particular task is provided against all Team and Business Task personality scales as indicated in Figure 8. This chart provides the student with valuable weekly information of the personality scales scores defined for both the team and the business task. At the end of every week students should reflect on their scores and remind themselves of the personality scale definition in order to improve their scores.

At the end of every task students receive an individual breakdown of their individual personality scales scores. This indicates to the individual student the areas of personality which they must develop over the course of the study. This information is to be reviewed in conjunction with the definitions of the personality scales.

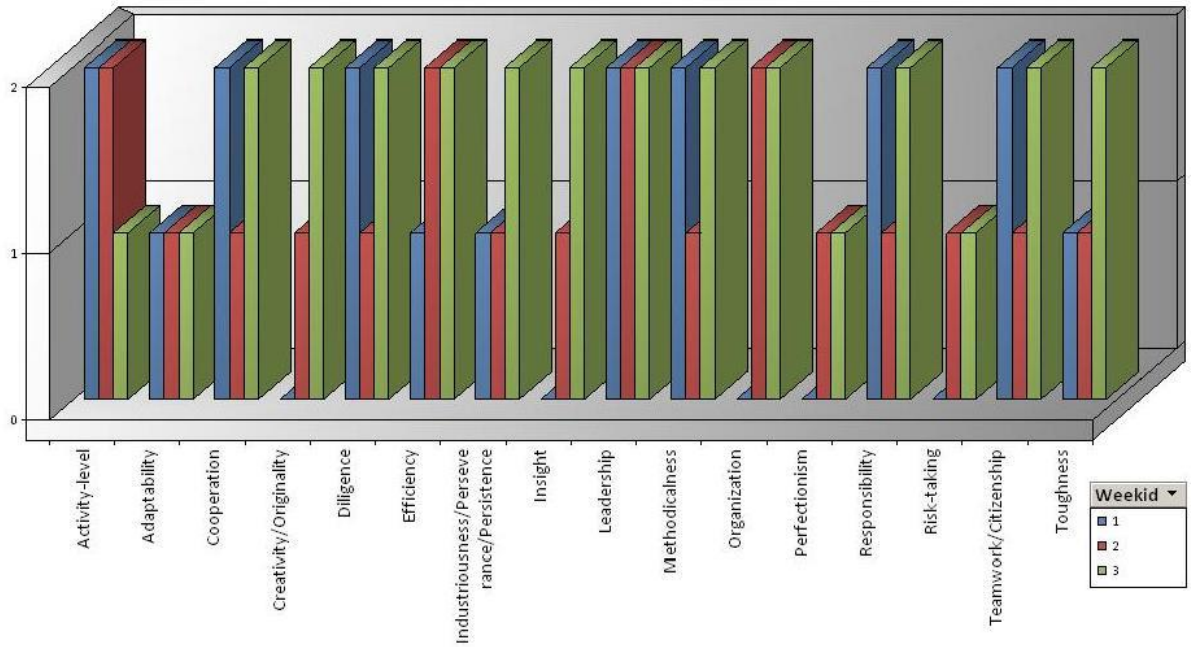

Figure 8: Education Task IPIP CDE Team Scores for team Bluebirds

Conclusion

This study has presented an innovative scheme for the assessment of students which does not focus directly on the outcomes of their work from a course perspective but instead highlights an approach which is based on the set of attitudes towards developing professional work practices. The method presented is about developing the right behaviours to work in professional practice and the need for the cohesive work in teams to improve the productivity of teams in a work environment. CDE focus on the wholistic process that starts with a job application and finishes with an employee developing the self and his soft skills while putting into practice technical skills learnt during an engineering and technology course.

The proposed assessment strategies were described by students as original and commended on the fact that feedback was given at the end of every week of work and in a visual way. The prompt feedback given by this assessment scheme allowed students to make noticeable improvements to their marks on subsequent project assessments within the module of study as they better understood the necessary attributes of employability and project work within a team.

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A COLLABORATIVE ESP: 'ENGINEERING SPECIFIC PURPOSE' OF WORKPLACE ENGLISH

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Abstract

Language practitioners at higher learning institutions are confronted with the dilemma on how to bridge the gap of English taught in the classroom and English in the world of work, and to understand the relationship between English for Specific Purposes (ESP) classroom practices against professional discourses, and professional practices. This paper deliberates on the approach and practices of the ESP teaching and learning in engineering the 'English' for workplace for engineering students at a higher learning institution in Malaysia. The method adopted is the investigation of the faculty needs and the course syllabus that are triangulated with student and instructor reflections. It highlights the approach to adopt an ESP collaborative syllabus that considers the specific needs of the students through a content analysis of their written reflection of the course in general and the focus on the project evaluation that should contribute to the potential characteristics of an ESP classroom. It draws one's attention to the understanding of ESP in a non-native English tertiary context and to the bridging of an English class for engineers to the demands and needs of real world Engineering English.

Keywords: *ESP Collaboration; Engineering; Workplace English; Higher Learning Institution; Language Practices*

Introduction

Hyland (2006) states that EAP in short is "specialized English language- teaching grounded in the social, cognitive and linguistic demands of academic target situations, providing focused instructions informed by an understanding of texts and the constraints of academic contexts". English for Specific Purposes(ESP) on the other hand, are defined i) to meet specific needs of the learners ii) to make use of underlying methodology and activities of the discipline it serves iii) to centre on the language appropriate to these activities in terms of grammar, lexis, register, study skills, discourse and genre. For those teaching in Asian context in countries such as China, Japan and other countries in the South East Asian (SEA) region, English is a foreign language to most of its people. In the context of the SEA region, English is the second language in countries like Malaysia and Singapore. English in these countries appear less alien than in the surrounding countries such as Thailand and Indonesia. According to the world ranking of countries by English skills, in the Asian region, Singapore is ranked number one (63.52%) followed by Malaysia (60.70%) and Philippines at (60.33%) with Singapore of very high proficiency level.

With such circumstances, it raises the question on what is the ESP practice that will bridge the gap of English taught in the classroom with English in the world of work. In other words, there is a need to understand the relationship between ESP classroom practices against professional discourses, and professional practices. Such dilemmas boggle the minds of most language practitioners when they are to be addressed in the learning of English at tertiary level in the higher education i.e. the university. Othman & Rashid(2010) pose the question of "how do language teachers at tertiary level of education address these characteristics when preparing undergraduate students for 'real world' use of English at the workplace based on their learned subject disciplines?". Are the students able to cascade their subject discipline knowledge to others using laymen's language? It puts forth a relevant question to address the kind of English to cater to undergraduates of specific professional disciplines who are of law, engineering and medical faculties.

Often, teachers refer to ESP modules or textbooks available in the market without evaluating the definite needs of these students in enabling them to articulate and communicate their subject content knowledge when at workplace. This paper shares the approach and practices of the ESP teaching and learning in "engineering" the English at workplace for students of the Engineering Faculty. It highlights the evaluation of the definite needs of the students and the approach in adopting an ESP collaboration. It draws the attention of the understanding of ESP classroom practices in a non-native English tertiary context. In this paper, we reflect on the teaching syllabus of English for Workplace Communication for the Faculty of Engineering, Architecture & Built Environment of Universiti Kebangsaan Malaysia(UKM), highlighting the adopted approach of ESP collaboration that was taken. It presents the description of the collaborative syllabus and its forms of project evaluation conducted with input of the Integrated Project (IP)engineering subject content lecturers. A total of 21 students from the Civil Engineering program were asked to write their reflections on the effects of the course on the students after the course ended after fourteen weeks. These written reflections are analysed to generate emerging categories which will be presented accordingly in the findings of student reflection. In writing the findings of student reflection analysis, pseudonyms are used in the examples of student

written reflections. We also elicited feedback from two instructors who have been teaching the course consistently over several semesters to the various program divisions. These divisions composite the Civil, Electrical, Chemical and Architecture engineering. A written feedback from two subject content lecturers were gathered to triangulate the data. All gathered data were triangulated focusing on the effects of this initiated ESP collaboration between the faculty and the teaching of English by the center that offers the teaching and learning of English to the undergraduates (CITRA UKM)

English in Higher Learning Institutions (HLI) in Malaysia

In Malaysia, English is the second language and proficiency in the language receives considerable attention where it has become a compulsory taught subject over the years in primary and secondary schooling. This is pursued even up to tertiary level in public and private universities, given the scenario whereby English becomes the medium of learning other than the mother tongue; i.e. the Malay Language. A public university was established on the basis to behold a mission that safeguards the sovereignty of the Malay language while globalising knowledge in the context of local culture. Its educational aim is to produce graduates who are imbued with confidence, ethics, leadership and national integrity who can engage internationally. The discussion in this paper situates the dilemma mentioned earlier in such a university where the mentioning of "globalisation" or "internationalisation" becomes a significant emphasis in its tertiary education. How do the language practitioners in such a context equip the kinds of English for Specific Purposes(ESP)to prepare the undergraduates of professional degrees? This paper deliberates on the approach and practices of the kind of ESP teaching and learning of Engineering Faculty students at a public national university.

The Dilemma of Engineering Student

The role of English is paramount particularly for globalisation and internationalisation resolutions within the workplace context. Several studies had examined the relevance of English language proficiency curriculum at Higher Learning Institutions(HLI)to the workplace needs and the real language use at the workplace in Malaysia (Hanafi & Nordin 2014; Talif & Noor 2009; Wahi et al. 2016). These studies mutually established that there was a disparity between the workplace needs and the language training offered in the university curriculum. Graduates' English language competencies are indeed far from reaching the employers' expectations since they have difficulty to (i) present ideas and explain issues orally and in writing, (ii) write reports, project papers, proposals and minutes of meeting; (iii) negotiate and convey ideas in planned and impromptu situations (iv) participate in group discussions required by most international and multinational companies (Ken et al. 2012; Rasul et al. 2014 ; Wahi 2014).

A study by Wahi (2012) investigated engineering students' English language literacy and competencies at a public university. The findings reveal that most of the students are incapable to express themselves clearly and to present information in their discipline effectively in their discipline despite possessing excellent ideas. This is said to be due to their lack of confidence and mastery of English. Despite the frequent oral presentations carried out in the Engineering courses, their major concern was their meager capability to express and articulate their ideas convincingly in English. They also experienced difficulties to respond and manage conversations

in English. This, according to them, was because they normally do the thinking in their mother tongue language (mostly Malay) and they translated their utterances first before they could even produce them in English. In actual fact, most Engineering students, particularly those in the Mechanical, Chemical and Electrical were exposed to numerical concepts and technical details extensively.

They may have acquired and possessed some basic knowledge on the procedures to apply and prepare themselves for the job interviews, some trainings on conducting discussions and meeting from the Workplace English course that they attended. This preparation however, was perceived as insufficient as they still lack the competence and confidence to communicate in English. These are the primary factors that contribute to the students' inability to demonstrate effective communication. Such predicaments contradict the needs of global workplace where employees are expected to reach the level where they can think in English, manage responses in job interviews and communicate effectively and appropriately at the workplace. More importantly, it is deemed problematical for the engineering students to apply for the positions in multinational and international organisations where daily routine necessitates English practices because of their scarce communicative competence and confidence. The sheer exhaustion of operating at two levels of English language is predictable, given the daily conversational English that the students are expected to be able to engage, alongside other Engineering discourses that they have to be able to perform in everyday discussion when attending to meetings and delivering oral presentations. Their informal communication in English and formal Engineering discourses that they are expected to manage will impose an immense complexity and challenges to them.

The engineering students at this public university operate in the environment where the Malay language is used extensively in their communication with their teachers and peers. They have to conform to various requirements in the engineering disciplines while coping with the English language which is not their mother tongue. Since English is used to conform to the flow of globalisation, the Malay language is principally upheld to keep to the university policy. This leads to substantial dilemma when dealing with writing and speaking activities in workplace English mainly because of their predicaments in applying accurate grammatical rules and constructing sentences. Their plight with linguistics knowledge, in terms of grammar and vocabulary, also contribute to this dilemma.

The issues highlighted above bring to the fore the crucial need to offer a course that is designed to equip the engineering students with the relevant ESP, in order to meet the demands of future workplace communication. Wahi et al. (2016) argue that there is limited study done on English language communication practices and competencies for workplace in an ESL context. Research and practical solutions on improving communication skills at the workplace for engineering students at Higher Learning Institutions **(**HLI)is still lacking. Therefore, to produce future engineers who are "effective communicator, emotionally intelligent and able to work across cultures while being socially responsible, competitive, resilient and confident" (Malaysian Higher Education Blueprint 2015-2025, p.14), an ESP collaboration that integrates professional and workplace-related communicative activities in a classroom is initiated. This requires a collaboration of subject content lecturers and language practitioners. This approach should enhance the 21stcentury skills; critical thinking and innovative skills that most international organisations worldwide look for (Greenstein 2012).

The Approach: ESP Collaboration

Bhatia et. al (2011) emphasised that "the most significant challenge is to bridge the gap between the classroom and the world of work, and understand the relationship between ESP classroom discourses, professional discourses, and professional practices". The move to adopt the ESP Collaboration was triggered by the communication issues often addressed between the Engineering faculty and the center for CITRA UKM; the center that offers English proficiency at UKM.

This ESP collaborative approach adopts an interdisciplinary collaboration to create a meaningful and authentic project based learning opportunity. Whilst in ESP classes, English is commonly taught to recognise the use of terminology of various disciplines, this project focuses on the verbal presentations of Engineers at workplace based on the projects of the different engineering fields. Collaborative teaching is predominantly a dynamic process which educators constantly reconfigure to fit their instructional plans and the learning needs of students (Bauwens & Hourcade, 1997).

This collaborative effort only demands the students to undertake one project with input from both their content and language lecturers. At the end of the semester, upon executing the project, they will have gained the technical and content based knowledge as well as the knowledge to deliver the content using an impressive presentation style and with a precise language. This collaboration has been practiced and studied for three cycles and is proposed to be modeled and implemented in other areas to forge interdisciplinary collaboration among different fields.

According to Khabiri and Marashi, (2015), collaborative teaching extends beyond the personal practice and research ambitions of several educators and turn into a more prevalent trend that could further enhance the learning of both students and teachers. It involves the macro planning of the whole program right up to the material development approaches and the evaluation components and assessment.

English for Workplace Communication vs. Workplace English for Engineers

English for Workplace Communication in general aims to equip students with both oral and written communication skills to meet the needs of job requirements. The course enables the students to prepare for job application, perform at job interviews, and carry out effective group meetings and conduct oral presentations. The job application and project components will be carried out based on teacher input, in-class practice and discussions, in flipped and blended mode. The evaluation components focus on job applications and interviews with a larger percentage on the group project reports and presentations. The job application component enables students to write effective cover letters and resumes, effective job interviews and effective group meetings. As for the project component, students are required to discover and apply appropriate strategies in product or service planning and presentations. In completing the project, students will go through on-going evaluations.

The English for Specific Purposes (ESP) Collaborative Syllabus

In contrast with the English for Workplace Communication offered to the general population as mentioned above, the ESP collaborative syllabus was introduced in English for Workplace Communication for Engineering faculty. While the two components of job application and job interview are retained in the Workplace English offered to the Engineering students, their evaluation differs in the project component. An ESP collaboration syllabus for the project is determined by the content course lecturers from various engineering departments or disciplines. The nature of the project composites what the faculty refers as the Integrated Project (IP) where the students identify a project that integrates the input and knowledge they gain from various courses that students take in the program for that semester. The details of the IP are then cascaded to the English language instructors as a project assignment that the language instructors will adopt as their project to evaluate the language proficiency of the students. In sum, there is only one project that students would have to embark on rather than several projects for several different courses in the program. A meeting is set to initiate discussions between the content course lecturers and the English language instructors for each discipline. The learning outcomes for the project component are assessed collaboratively where the subject content lecturers assess the content mastery and the language practitioners evaluate the language use and the communication skills.

With the collaborative effort, the engineering students will only undertake one project based on their engineering discipline which will fulfil both the content course and English language course project requirements. This would resolve the students' concern regarding the workload and assessment anxiety where students prior to this initiative had to prepare two Oral Presentation tasks; one for the English course and the other for the subject content lecturers. The students in groups will work on an integrated project stipulated by one of their respective engineering disciplines such as the Civil, Mechanical, Chemical or Architecture. Discussions between the students and the related content course lecturers are carried out to determine the integrated project topics relevant to the respective disciplines.

The Chemical Engineering and the Architecture and Built Environment students are required to present their projectsin group presentations where the evaluators comprise the content lecturers and the language instructors to sit in together. The Mechanical Engineering students are required to present their integrated project in a form of a demonstration and a poster presentation at an open day booth. The Civil Engineering students on the other hand are required to prepare recorded documentary presentations onto CDs which are submitted to both content lecturers and language instructors. The progress of the students in the project based on the language course requirement is monitored and evaluated similarly with the general groups of students.

Student Reflection

In determining the effectiveness of the English course and the course approach, students were asked to provide feedback on their learning experience through individual reflections. They were asked to write their personal views of the course and the teaching approach in general.This paper reports the reflections written by the Civil Engineering students. The students' feedback on the

course approach led to emerging categories as follows: (i) boost of motivation and confidence in using the English language; (ii) effectiveness of teacher coaching ; (iii)improvement of oral presentation and (iv) enhancement of communication skills.

Boost motivation & confidence to communicate in English

A student, Amir expressed that he had no hesitation to speak in English as the knowledge gained from the instructor had inspired and motivated him to use "proper English". In this reflection, the teacher plays the role as the knowledge provider and the motivator to help students to speak in English appropriately.

> *"After all, I gained so much new things from you, and from now on, I won't be hesitate to try to speak in proper English".*

This shows that adequate language input with instructors' guidance and encouragement will inspire students to communicate in English confidently. Boosting the students' confidence in speaking the language where they may have hesitations to use the language is essential. Another student mentioned that the course had promoted him to be more confident to communicate in English. He stated the changes of his attitude towards speaking English from feelingpassive and shy to feeling more confident to speak.

> *"One thing that very help me through this course is being confident to speak English with other people. Before this, I'm very passive and shy to speak in English but after this i will increase my confidence to talk with others"*(Kamal)

It seems that the course syllabus and approach had managed to lift off the student's shyness in speaking English to communicate. The student seems to have managed to overcome the feeling of shyness that had led to the student to feel confident to 'talk with others'. Overcoming one's shyness and to in turn gain confidence to communicate with others in English is something that is significant to note.

Effectiveness of teacher coaching

Another significant element to pay attention to is the effectiveness of teacher coaching. It is worth to note that students believed that they had gained confidence communicating in English through the teachers' coaching approach in the course. Justin reveals that he appreciates the way his teacher coached him during his presentation by correcting his gesture, voice level and language.

> "*The other thing that I gained during the course was confident. Honestly, I really like the way you treated me during presentation. You correct me about my gesture, voice level, language and most importantly give full attention and respond during presentation session"*(Justin)

More importantly, he welcomed the fact that his teacher had given him full attention by reponding to his presentation. The coaching approach had enhanced his confidence in doing his presentation. He further explained that:

> *"These kind of things could boost up my confident level especially about 'attention' that I mentioned just now. It was like I am not talking to nobody and presenting alone in class."*

The student's remark of*'these kind of things'* which had referred to the teacher's correction of gesture, voice and language to use in presentations are elements that had led him to gain his confidence. It is interesting to note that the student had felt that he was not talking alone in the class during his presentation. This indicates that the teacher approach had given him the impression that his presentation was being listened to attentively by the teacher through teacher's impromptu feedback. Thus,it is undeniable that the teacher's attention and coaching are significant in motivating and encouraging students to excel in the presentation task.

Improvement onOral Presentation

A few students pointed out that the guidance on proper and correct pronunciation from the language instructors had helped them to communicate and present. One of the students reflected that she had learnt about pronunciation through the teacher's correction during her presentaion.

> *"I learned about pronunciation and you always correct me whenever I was wrong especially during presentation"*(Shaz)

This shows that an impromptu correction of the way words is pronounced is received as a means of learning and improving their pronunciation and to be taken note by instructors of the course. On another reflection. A student remarked that he had improved 'a lot' in communication.

> *"I improve a lot of thing especially in communication for example how to give message effectively, how to interrupt with politely and Dr. always correct my pronunciations and it is very good way to improve my English language"*(Goh)

Goh specifically remarked that the way he has improved his communication is in the way a message is to be delivered effectively. He highlighted that he was made aware of how to interrupt politely. This is referred to the discussion task of groups' progress meeting which was evaluated on individual scores. Repeatedly, the correction on his pronunciation was believed to improve his English language. The reflection below from Alisa believed that the ***guidance from the lecturers and attending class had helped students to improve pronunciations and writings.***

> "I believe with guidance from lecturer and attend class it will help student to improve pronunciations and writing" (Alisa)

It is worth to note several key words such as 'guidance', 'attend class', improve pronunciation' and 'writing' mentioned by the student. A class where the instructor guides students as in contrast to just 'teach' or 'lecture' must receive some attention. Other than that, what is most interesting is that Alisa mentioned that this approach did not only improve her pronunciation but also her writing. This indicates that the approach has raised the student's awareness not only in the use of spoken English but also in the written English. Another student admitted that the

course had given an 'impact' on him to be a 'good speaker' in terms of having to speak accurately and clearly.

> *After I attended your class, you gave me a huge impact that to be a good speaker, you have to speak accurate and clear"* (Rizal)

This highlights two significant elements that students were made aware of and they are the accuracy and clarity in delivering oral presentations. The student was aware that the language needs to be accurate. This would refer to the 'grammar' of the language which will include primarily the use of tenses and singular and plurality of subject nouns which have been made central to the students. Rizal's comment of speaking 'clear' would refer to the need to be aware of clarity. This may refer to the efforts to be made to articulate words clearly in delivering an oral presentation.

Other than an emphasis on pronunciation, few students also stated that they had learnt to speak with the correct intonation and the impact of intonation in communicating with others. Krishna reflected that he was made aware of using the correct intonation :

> ***"****In this class I also learnt the right intonation while speaking with people" (Krishna)*

Aiman supported the emphasis on correct intonation through his comment on realising the 'mouth opening' which obviously refers to the 'art' of articulating words to speak clearly.

> "*And now I realized that intonation and also mouth opening(I don't either this terms is correct or not..) play a huge role in communication :)"* (Aiman)

This section highlights the elements that students believed that theyhad improved their communication in delivering their oral presentaions. In delivering an effective presentation, articulation and pronuncition are important as to avoid misunderstanding and miscommunication. The communication skills input and the language instructors' feedback on the students' performance throughout the course duration prior to the project presentation had prepared students to present clearly and effectively.

Enhancement of Communication Skills

A few students admitted that the course had enhanced their communication skills. A student, Krishna expressed positive attitude towards the course as he believed that it had improved his communication skills.

> *"I love this subject because it helps me to increase my communication skills."* (Krishna)

It is relevant that the student mentioned that the subject had increased his communication skills. This shows that the student is aware of 'skills' to be paid attention to. The importance of communication skills has been echoed by employers locally and internationally for all disciplines

especially in engineering. The skills are considered equally important as content knowledge as engineers need to know how to communicate and present the content knowledge effectively.

One interesting reflection is the student's remark on able to learn other forms of 'professional communication skills' and non-verbal communication skills.

> *"I was able to learned many other professional communication skills and also non verbal skills."* (Yusuf)

His use of the word 'professional' is a good indicator that the student is aware of perhaps the workplace communication skills that he had referred to as the 'professional communication skills'. He believed that the course had furnished him with the 'professional communication skills and the non-verbal communication skills that are required in the field of engineering. Non-verbal communication skills were also given emphasis class. Students were made aware of the body language such as facial expression, eye-contact, posture and hand gestures in discussions, meetings and presentations.

The course requires the students to conduct progress meeting and present their project. Prior to the progress meetings and presentations, instructors had given students input on using the appropriate language of meeting. They were exposed to the strategies for polite communication. These class practices had helped students to enhance their oral communication skills. Another student, Fizi believed that there was an improvement in his verbal communication skills as well as his written communication skills.

> *"As you have noticed, I have improved a lot (I believe so) on my verbal communication as well as my writing skill."* (Fizi)

This indicates that the course approach and the learning activities had not only improved the students' verbal and non-verbal communication skills but also their written communication skills. This may have referred to the job application component where students were required to write effective cover letters and resumes. Students were made aware of the appropriate vocabulary and strategies in writing the cover letter and resumes effectively. Based on the students' feedback, it is evident that the course has helped and developed the engineering students to be confident and more competent language users.

Subject Content Lecturer Reflection

The collaboration with Citra UKM on teaching English to engineering students (Chemical Engineering) using an engineering project called Integrated Project (IP) in the department as main material had started in 2012. As the project is based on the subject content knowledge, less emphasis is given to the English communication skills mainly due to time constraint. The collaboration is mutually agreed as most practical solution as the English teachers were seeking solutions to determine appropriate engineering projects. The students final presentation of the IP project involves both engineering lecturers and English language practitioners. This allows ample time to evaluate the technical or engineering aspects and communication skills in English.

Their observations and experiences after several years of collaboration have indeed according to one of them "an eye opener". They admit that student presentation in English appeared to be more structured, rehearsed and composed. Their composure during presentations appeared more controlled and many aspects of their English have improved such as pronunciation, grammar, spelling and other features of communication skills. Their report writing skills are said to have also improved as it is evident in the high scores for report writing. Responses and feedback from engineering lecturers on students' communication and presentation skills have since then been positive.

The Language Practitioner

In every semester that the Workplace Communication course for Engineering students run, there will be between one to two language practitioners for each division of the programs. Since there are four divisions, this tentatively will need the recruitment of a total of eight language instructors who will each take up about 25 – 27 students for each group. At randomly, four out of the eight language instructors were elicited feedback and all are positive and inclined to this ESP collaboration with the faculty members. It solves the problem of the contraints imposed on engineering students whose time is much more packed than students from other faculties.

However, in times where there is an absence of the meet discussions between the faculty members and the language instructors to determine project evaluation details, the momentum becomes less. Each member from each side will take their own lead and ways to handle the class and this defeats totally the initiated idea on the collaboration. According to one of the instructors, there needs to be a constant monitoring and liasing between the two member parties especially at the beginning of each of the semester. What the language practioners hope for is that when there is a change in those heading the respective decisions, it is crucial to cascade this ESP colloborative syllabus approach to the newly appointed heads. The problem is unresolved when the heads are mostly not in the loop of this ESP collaborative syllabus.

The language practioners also puts forth that in the coaching of the students' IPs, it will not be a focus on language and delivery only. This means that in the process of evaulation, language instructors do find that they will need to make efforts to understand the written content in order to amend or to correct the students' use of language. Language instructors are made aware that their jobs are not as editors as this can be perceived by the students as an editing job. The challenge is to coach the students to be able to deliver their knolwedge in laymen's terms. This is where the biggest challenge is.

Conclusion

The concerns over the teaching of English for Specific Purposes (ESP) or English for Academic Purposes (EAP)in higher institutions of non-native regions where English is a second or a foreign language have not directly received much consideration. The trepidations on bridging the gap of the potential human capital to the workforce have been in debate or talked about when it relates to the mass production of newly undergraduates from universities around the region. This is much the case discussed, mentioned and debated in the case of Malaysia undergraduates where

claims have been made that quite a percentage of Malaysian fresh graduates are unemployed. This has strongly pointed to their supposed lack of communication skills and in this aspect, further claims have been made that is due to their poor command of English. This paper directs our attention to the understanding of ESP in a non-native English tertiary context (in this case the Engineering graduates) and its bridging to the demands and needs of real world Engineering English.

Efforts were taken to address this problem through what we label as ESP Collaborative English for engineers where the focus is to cater for the different demands of presentation style and the assessment of the project, the coaching of better communication skills as well as the language of presentation that is based on the needs of the project of various engineering disciplines among other knowledge competencies that the undergraduates should possess. The dilemma of the engineering students in coping with their language ability and the demands on their competency is crucial to determine the understanding of the issues at hand in non-native English-speaking contexts or countries. The claimed ESP classroom practices in higher institutions need to triangulate with this impasse that should shed light on this persistent issue of how do language practitioners deal with the ESP of Engineering students. The rightful approach should take into consideration the voices of the student-language instructor-subject content lecturer and in executing this ESP collaboration and most importantly, it is also worth to note the challenges and hiccups.

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DEVELOPING A PEDAGOGICAL MODEL OF SERVICE LEARNING: THE DE LA SALLE UNIVERSITY-DASMARIÑAS EXPERIENCE

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Abstract

De La Salle University-Dasmarinas (DLSU-D) is committed to its educational mission of providing "a human and Christian education to the young, particularly the youth at risk" including the marginalized communities. To realize this mission, DLSU-D emphasizes "learning by doing" in its approach to education. Learning takes place when there is actual application of the knowledge and skills learned in the school, and if the student can make a connection between academic learning and the world s/he lives in. One way to check this is through service learning.

This study analyzed the cognitive, affective, and psychomotor effects of service learning to the students and its benefits to the community-recipients. It

used both quantitative and qualitative approaches in assessing the programs/activities in the church or community as service learning component of the subject Religious Education (REED) 142. The main respondents were 2,125 REED students during the second semester of SY2014-2015 who answered the survey questionnaire. The semi-structured interview guides were used for the faculty and community-recipients. The students reported that they participated in different community activities that had positive effects on their cognitive, affective, and psychomotor domains of learning. The students' involvement in the community had favorable impact on the community-recipients. It served as the source of intervention and valuable human resource and it contributed to the psycho-emotional well-being of the people concerned. The findings of the study helped in the development of a pedagogical model of service learning that shall be a unique DLSU-D approach in facilitating students' learning and, at the same time, in responding to the needs of the marginalized communities.

Key Words: Service learning, Community engagement, Knowledge and skills application, Experiential learning, Students' involvement

Introduction

All institutions of higher learning aim for quality education. Quality education ensures the development of the whole person that includes his/her development in the cognitive, affective, and psychomotor domains. Learning and development in the three domains normally happens in the classroom setting. However, learning is not only limited in the boundaries of the school but it also takes place outside the school premises. It happens when there is actual application of the knowledge and skills learned in the school and if the student can really make a connection between the academic learning and the world s/he lives in. One way to check this is through service learning. Service learning aims to reach out to a wider segment of an academic community beyond what is covered or discussed in a course syllabus within the confines of the four walls of the classroom.

Service learning is a relatively new social and educational concept that lacks a well-defined and well-articulated theoretical and conceptual framework since the concept may be related to experiential education bringing to fore the question on whether it is a field or social movement (Giles &Eyler, 1994). Practitioners of service learning are more oriented to action and intensive field work in adopted communities of their institutions than conducting scholarly, academic pursuits. In the United States, service learning is currently a major national movement at every educational level and serves as a potential powerful force in undergraduate education, attempting to connect academic study with community service through structured reflection which ultimately makes learning deeper, longer-lasting, and more portable or meaningful to new situations and circumstances (Ehrlich, 2005). Dietz et al. (2006) also mentioned that there has been a growing trend to include community service and service-learning in America's schools as

educators and school administrators realize the value of service for the academic and personal development of the youth.

In the field of Educational Philosophy, service learning traces its roots to the philosophical writings of John Dewey and Jean Piaget, including Alexis de Tocqueville, who believed that learning occurs best when students are actively involved in their own learning and where such learning serves a distinct purpose (Billig, 2000).

Service learning is defined differently by various authors. To Bennett et al. as cited by Toledano & Lapinid (2009), service learning is an educational process where students are guided and educated into a volunteer experience in communities that will allow them to observe, practice, and deliver skills and services taught in the classroom. Isaacson, Sapertein, & Buchanan et al. as cited by Toledano & Lapinid (2009) defined service learning as a pedagogy that enables students to engage in active and real life learning experiences. It is an opportunity to apply the concepts, knowledge and skills learned in the subjects in classroom setting in the outside community. Billig (2000) mentioned the following definitions of service learning: (a) it is any carefully monitored service experience in which a student has intentional learning goals and is reflected actively on what s/he is learning throughout the experience (from the National Society for Experiential Education), and (b) it implies a method under which a student or participant learns and develops volunteerism through active participation in a thoughtfully organized service conducted to meet the needs of a community. It is coordinated with an elementary school, secondary school, institution of higher education, or community service program and with the community. It helps foster civic responsibility, is integrated into the (core) academic curriculum of the students or the educational components of the community-service program in which the students are enrolled, and provides structured time for the students to reflect on the service experience (from the Corporation for National Service).Ehrlich (2005) articulated three directions of service learning. First, it enhances academic learning for it enables students to connect thoughts and feelings. It offers students opportunities to consider what is important to them. Second, it serves as a vehicle to promote skills and knowledge needed for leadership. And third, it contributes a greater sense of civic responsibility to the students.

Astin et al. (2000), likewise, stated that service learning represents a potentially powerful form of pedagogy because it provides a means of linking the academic with the practical. The more abstract and theoretical material of the traditional classroom takes on a new meaning as the student "tries it out," so to speak, in the "real" world. At the same time, the student benefits from the opportunity to connect the service experience to the intellectual content of the classroom. By emphasizing cooperation, democratic citizenship, and moral responsibility through service learning, higher education connects to the wider community and prepares students to meet society's urgent needs.

The differences in defining the concept of service learning actually reflect a division of opinion in the field regarding service learning as a philosophy of education, a curricular tool, or a program design. Essentially, service learning introduces a central idea wherein schools play important roles in developing their students to become responsible, caring, and meaningful civic responsibility-oriented citizens. Moreover, as a curricular tool, service learning is viewed as a powerful, active form of reciprocal teaching and learning which may be integrated into the

school curriculum and aligned with their standards of service to a wider segment of the community (Billig, 2000; Chatham, 2009; Jones, 2010; Craver, 2010).

The research conducted by two Lasallian professors, Toledano & Lapinid (2010),assessed the service learning pedagogical project at the Jaime Hilario Integrated School (JHIS), a Lasallian co-educational primary school in Bagac, Bataan, where community perspectives focusing on community member's needs and problems, perceived roles and participation, and suggested activities and projects were studied. The researchers concluded that: (a) it is important for educational institutions to ensure that service learning projects meet the needs of the community, (b) various sectors of the community have unique needs to be assessed, and (c) aside from the common economic, education, and social service problems, rural poor communities also need trainings on values formation and personal development. In this regard, community members have to be involved in the initial planning and development of service learning projects and not merely participate during the actual implementation. Finally, given the poor understanding of community members on their roles and participation, clear explanation of the goals of service learning projects is a way of strengthening the relationship between service-providers and recipients.

Generally, it can be said that service learning may influence the process of intellectual and social maturation in the education of a child by unifying his/her affective, cognitive, and behavioral domains (Moss, 2009).A meta-analysis conducted on the impact of service-learning on students noted five outcome areas to those who participated in service learning program such as (a) attitude toward self, (b) attitude toward school and learning, (c) civic engagement, (d) social skills, and (e) academic performance. It was furthered that students in the service learning program enhanced their self-efficacy and self-esteem, increased positive attitudes and behaviors related to community involvement, and gained social skills relating to leadership and empathy (Celio, Durlak & Dymnicki, 2011). It was also significantly noted in the same study that service learning students grew in various social skills related to communication, leadership, and problem solving. In relation, Strait, Londy & Panone (in Murphy & Tan (eds.), 2012) emphasized that service learning helps the students to make a transformative difference in themselves and in the community. It empowers them to teach each other. Similarly, Sliwka & Klopsch (in Murphy & Tan (eds.), 2012) stated that the experiences of students in service learning help them connect the theory that they learned from the school with the real world applications.

In an exploratory study to assess the influence of service learning on students' personal and social development, major benefits were recognized from engaging in service learning as improvement in students' academic learning, personal and interpersonal development, and community engagement. It was noted that service learning contributes to students' academic learning and personal and social development through social-emotional processes (Simons & Cleary, 2006). In the same way, Spring et al. (2006) found out that participation in school-based volunteer service, and especially in service-learning courses with several quality elements, had a strong positive relationship with several measures of civic engagement, including their stated likelihood of future volunteering, their sense of personal efficacy, and their interest in current events and politics.

Compared with other students, those with substantial hours of service learning, a lot of reflection, and a high degree of motivation attributed to service-learning significantly increased their belief in the efficacy of their helping behaviors, maintained their pursuit of better grades, and improved their perception that school provided personal development opportunities (Scales et al, 2000). These results indicate that service learning can positively affect students' social responsibility and academic success.

De La Salle University-Dasmarinas(DLSU-D),a tertiary institution in Dasmarinas, Cavite, is one of the 17 La Salle schools in the Philippines committed to its educational mission of providing "a human and Christian education to the young, particularly the youth at risk", including the marginalized communities. To realize this mission, DLSU-D emphasizes "learning by doing" in its approach to education. It adopts a curriculum that involves the integration of service learning in the subjects. It allows the students to make connections of the academic learning and the world they live in.

Thus, with the researchers' aim to formulate a service learning model for DLSU-D, the current study assessed the curriculum across colleges with service learning component. Among them, it is the "Discipleship in the Christian Community" (REED142), a Religious Education subject, that is found to have the service learning component. This course is taken by students to enrich their knowledge on the church as a community of disciples and to participate in and live out the church's mission and sacramental life. The students are required to have an involvement in church or community as an opportunity to exhibit their familiarity, deep understanding, and appreciation of the course and translate them into actual situations.

Statement of the problem

The study sought to answer the following questions:

1. What activities related to service learning are participated in by the students as part of the requirements of REED142?
2. What are the effects of the activities on the students' cognitive, affective, and psychomotor domains of learning?
3. What are the benefits of the program on the community-recipients?
4. How can the University sustain the program on service learning?
5. Based on the results of the study, what unique model of service learning could be proposed?

Conceptual framework

The Input-Process-Output-Outcome (IPOO) model was used as the framework in this study. The INPUT consists of the syllabus incorporating the involvement of students in the programs on service learning, the REED142 students who were involved in the said program, and the recipients in the community where the students were immersed. The PROCESS consists of the students' participation in the community and the interaction between the students and the community recipients. The OUTPUT consists of the effects of the activities on the students' cognitive, affective, and psychomotor domains of learning and of the benefits of the program to

the community-recipients. The OUTCOME consists of the proposed model of service learning for DLSU-D.

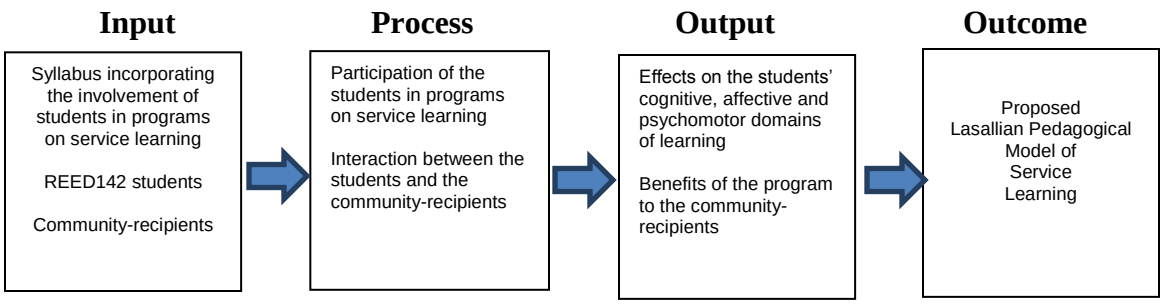

Figure 1. The Paradigm of the Study

Method

The study used a mixedmethod of quantitative and qualitative approach in assessing the programs/activities in the church or community asa service learning component of REED142. There were three groups of respondents in this study. The main respondents were 2,125 students enrolled in REED142during the second semester of SY2014-2015. These students belonged to the seven colleges of the University as follows: 39 from the College of Criminal Justice Education (CCJE), 90 from the College of Education (COEd), 256 from the College of Tourism and Hospitality Management (CTHM), 289 from the College of Liberal Arts and Communication (CLAC), 446 from the College of Science and Computer Studies (CSCS), 501 from the College of Business Administration and Accountancy (CBAA), and 504 from the College of Engineering, Architecture, and Technology (CEAT). The other groups of respondents were the (a) community-recipients and the (b) Religious Education faculty members who were handling the subject. The research was conducted after the 10-hour community involvement of the students.

The researchers utilized two types of self-made instruments: a survey questionnaire for the student-respondents and semi-structured interview guides for the faculty and community-recipients. The survey questionnaire administered to the student-respondents wasused to collect data on their specific involvement in the community and the effects of such involvement in their cognitive, affective, and psychomotor domains of learning. Under these major dimensions were sub-dimensions such as(a) new perspectives, (b) awareness of community issues, (c) collaboration, (d) understanding solutions to community problems, and (e) preparation for real life. Each sub-dimension was composed of ten-item statements where students rated the effects of their involvement in their learning. Separate interview guides were used for the Focus Group Discussion (FGD) conducted with the faculty and another one for the community-recipients, which provided the data on the benefits of the students' involvement to the community-recipients and the ways on how to further sustain the program. They were used to generate context, themes, and in-depth information to support the results of the survey.

The researchers used frequency count and mean to quantitatively analyze the data.For the qualitative analysis of data, coding and formulation of themes from the significant statements of the community-recipients and persons in-charge of the program were done.

Only descriptive statistics was used to analyze the data and present them in a more meaningful way as a basis in developing a model for Service Learning. Inferential statistics was not used because the study did not aim to compare groups of respondents or to infer from the sample data what might have happened or what the population might think.

Results and discussion

Problem No. 1: What activities related to service learning are participated in by the students as part of the requirements of REED142?

Table 1 Activities Participated in by the Students

Activities	Frequency
Liturgical and Church-Related Activities	988
Care, Help and Support for the Needy	861
Environmental Care and Protection	516
Clerical work	253
Organizing events	128

N= 2,746*(This number represents the number of times the students mentioned their participation in the various activities enumerated herein.)*

The responses of the students were tallied and categorized according to their involvement. Table 1 shows that on the top of the list is the involvement of 988 students in liturgical and church-related activities. This includes the assistance they gave as usher, server, lector, and collector and in the preparation of liturgical materials, as well as participating in prayer meetings, Bible reading, preaching and teaching in the Sunday school. Second in the list is the participation of 861 students on activities related to care, help, and support for the needy. Help was extended to the street children, orphans, elderly, persons with disability, and the victims of calamity. This was done through different charity work, outreach activities, and relief operations participated in by the students. They also participated in feeding programs, medical missions, and livelihood programs. The third in the list is the involvement of 516 students on activities related to environmental care and protection which were exhibited through planting trees, joining in waste segregation, recycling, environmental exhibits, weeding, watering plants, and encouraging people to save the environment. There were also 253 students who did clerical work, both in the parish and in the office of the Barangay, where they helped in computer work, filing documents,

and recording. There were also128 students who shared their talent in organizing events for the community, including fund-raising.

These data show the diversity in the activities participated in by the students. They met new people, communicated with them, helped them with their needs, and addressed their concerns. Some of these activities were new to the students. Through these, they were able to gain new perspectives, became aware of community issues, learned to collaborate with others, understood solutions to community problems, and were able to prepare for real life.

These activities are similar with the list of service learning projects mentioned by Bowen (2007) that may be integrated effectively into the curriculum though the process of reflection: serving as math and reading tutors to elementary school pupils, assisting the county's Habitat for Humanity organization in building houses for homeless people, supporting entrepreneurial projects in low-income neighborhoods, producing documentaries for nonprofit organizations, preparing business plans for a small enterprises, creating websites and databases for human service agencies, collecting litter in public parks, making presentations on the state of the environment, conducting voter registration drives, or raising funds for charitable organizations.

Problem No. 2: What are the effects of the activities on the students' cognitive, affective, and psychomotor domains of learning?

Table 2 Effects on the Students' Cognitive Domain of Learning

A.	***NEW PERSPECTIVES: Through community/church service,***	**Mean**	**SD**	**VI**
1	I gained deeper knowledge about the community/church.	4.41	0.71	Always
2	I realized the meaning of service.	4.49	0.68	Always
3	I understood the meaning of social responsibility.	4.48	0.68	Always
4	I was able to identify the different activities of the community/church.	4.16	0.80	Often
5	I learned the importance of volunteerism.	4.45	0.72	Always
6	I recognized my responsibilities to take care of the environment.	4.42	0.74	Always
7	I became aware of the situation of the poor.	4.45	0.77	Always
8	I learned how to follow rules and regulations.	4.47	0.70	Always
9	I understood the importance of time management.	4.42	0.75	Always
10	I realized the importance of good leadership in the community/church.	4.49	0.71	Always
	Average	**4.42**	**0.50**	**Always**

B.	***AWARENESS OF COMMUNITY ISSUES: Through community/church service***,	Mean	SD	VI
1	I recognized that there are different behaviors of people working in the community/church.	4.48	0.70	Always
2	I understood that commitment is necessary to serve the community/ church.	4.47	0.67	Always
3	I learned that social justice is a common concern of the	4.25	0.77	Always

	community/church.			
4	I was well-informed of the different programs and activities of the community/church that address the various needs of the people.	4.19	0.85	Often
5	I realized that the community/church needs more volunteers to help in their different programs and activities.	4.45	0.76	Always
6	I realized that all of us should help the community to protect the environment.	4.51	0.71	Always
7	I learned to defend the rights of the poor.	4.26	0.85	Always
8	I understood that the rules and regulations keep the community/church peaceful and orderly.	4.47	0.72	Always
9	I realized the importance of implementing time management in any organization to have a smooth operation.	4.43	0.74	Always
10	I realized that managing people may involve different leadership styles.	4.42	0.73	Always
	Average	**4.39**	**0.51**	**Always**

C.	***COLLABORATION: Through community/church service,***	**Mean**	**SD**	**VI**
1	I learned how to approach different kinds of people involved in the community/church activities.	4.34	0.78	Always
2	I recognized the coordination of different groups to serve the community/ church more effectively.	4.30	0.77	Always
3	I understood the importance of working together for social justice.	4.33	0.79	Always
4	I learned how to coordinate different activities with other groups of people.	4.32	0.80	Always
5	I understood the importance of working together with people in "volunteerism".	4.43	0.75	Always
6	I realized the importance of encouraging students to join the different activities of the community/church about the environment.	4.32	0.82	Always
7	I realized the importance of working together to facilitate the upliftment of the well-being of the poor.	4.37	0.78	Always
8	I understood that the implementation of rules and regulations is the responsibility of everyone in the community/church.	4.40	0.77	Always
9	I understood the importance of coordination of activities with different people and offices.	4.38	0.72	Always
10	I realized the importance of mentoring/coaching by experienced persons about leadership skills.	4.31	1.35	Always
	Average	**4.35**	**0.59**	**Always**

D.	***UNDERSTANDING SOLUTIONS TO COMMUNITY PROBLEMS: Through community/church service,***	**Mean**	**SD**	**VI**
1	I learned that gaining better understanding of individual differences in the community/church helps people with their problems.	4.44	0.71	Always
2	I realized that community service has favorable impact on the lives of the people.	4.36	0.73	Always
3	I realized that social action programs increase the sense of social responsibility of the people.	4.33	0.76	Always
4	I learned that involving the students in community service leads them to become responsible citizens.	4.43	0.72	Always
5	I understood that doing voluntary work develops social consciousness.	4.42	0.73	Always
6	I realized the good effects of the "cleanliness and environmental activities" of the school to protect our Mother Earth.	4.43	0.75	Always
7	I recognized that the poor can also contribute in the improvement of the community/church condition.	4.42	0.75	Always
8	I understood that proper implementation of rules and regulations make the people more disciplined.	4.45	0.72	Always
9	I realized that time management brings good results in organizing activities.	4.47	0.71	Always
10	I understood that effective leadership style is a factor to form responsible people.	4.48	0.70	Always
	Average	**4.42**	**0.52**	**Always**

E.	***PREPARATION FOR REAL LIFE: Through community/church service,***	Mean	SD	VI
1	I learned that involvement in community/church activities is a good training ground for students to become more responsible citizens.	4.54	0.69	Always
2	I realized that students become service-oriented.	4.33	0.75	Always
3	I learned that students develop a sense of social responsibility.	4.36	0.77	Always
4	I gained better connection of the lessons discussed in the class to the activities in the community/church.	4.35	0.76	Always
5	I realized that volunteerism helps me to develop a sense of sharing and caring to others.	4.44	0.73	Always
6	I realized my duty to protect the environment even in small things like by not littering.	4.43	0.75	Always
7	I realized that the poor are also members of the society who have dignity as persons.	4.50	0.70	Always
8	I understood that abiding by the rules and regulations promulgated in the community/church creates peace and order.	4.46	0.71	Always

E.	***PREPARATION FOR REAL LIFE: Through community/church service,***	Mean	SD	VI
9	I realized that time management helps me to become more organized in any activity.	4.48	0.73	Always
10	I realized that my experience in community/church involvement helps me to be an effective leader.	4.39	0.75	Always
	Average	**4.43**	**0.53**	**Always**

Table 2.1 Summary Table for Cognitive Domain

Cognitive Domain	**Mean**	**SD**	**VI**
New Perspectives	4.42	0.50	Always
Awareness of Community Issues	4.39	0.51	Always
Collaboration	4.35	0.59	Always
Understanding Solutions to Community Problems	4.42	0.52	Always
Preparation for Real Life	4.43	0.53	Always
Overall	4.40	0.47	Always

Tables 2 and 2.1display the effects of the activities engaged in by students in their cognitive domain of learning. The overall mean of 4.40 which is verbally described as "always" implies that the students gained knowledge from the different activities that they did in the communities where they conducted their service learning.

From the five areas rated, the highest mean of 4.43 was registered under "Preparation for Real Life." This means that the students believed that involvement in community activities is a good training ground for students to become more responsible citizens, they realized that the poor are also members of the community who have dignity as persons, they realized that time management can help them to become more organized in any activity, they understood that abiding the rules and regulations promulgated in the church/ community creates peace and order, and they realized that volunteerism helps them to develop a sense of sharing and caring to others. Since these items pertain to life preparation, it is implied that the students will become better citizens of their community who will be able to create a difference in the lives of the people and in the affairs of the community because they will have a deeper sense of volunteerism and they will be more responsible, more caring, more law abiding, and more respectful of others.

These findings were confirmed by the results of the FGD conducted among the faculty members and the persons in charge of the community where the students served. Both the FGD participants shared that there were some students who continued their involvement in the community even after their allotted timehad ended. These people believed that the students were able to develop the sense of volunteerism which motivated them to go back even after the fulfillment of their course requirements.

These findings are parallel to the results of studies conducted regarding effects of service learning on students,that their engagement in service learning showed development in attitudes related to service and abilities (Crone, 2013; Simons & Cleary, 2006).

Table 3 Effects on the Students' Affective Domain of Learning

A.	***NEW PERSPECTIVES: Through community/church service,***	**Mean**	**SD**	**VI**
1	I feel that I am part of the community/church.	4.47	0.75	Always
2	I am willing to share my talents and skills to the community/church for service.	4.39	0.80	Always
3	I am challenged to work for social action.	4.36	0.75	Always
4	I appreciate the different activities of the community/church.	4.48	0.71	Always
5	I feel blessed in working in the community/church without expecting something in return.	4.53	0.71	Always
6	I treasure the beauty of the environment.	4.51	0.69	Always
7	I become more compassionate to the poor.	4.44	0.73	Always
8	I respect the rules and regulations of the community/church.	4.55	0.68	Always
9	I appreciate the value of being a disciplined person.	4.55	0.67	Always
10	I appreciate the leadership skills of the leaders in the community/church.	4.51	0.70	Always
	Average	**4.47**	**0.56**	**Always**

B.	***AWARENESS OF COMMUNITY ISSUES: Through community/church service,***	**Mean**	**SD**	**VI**
1	I appreciate how the people work in the community/church despite individual differences.	4.52	0.66	Always
2	I am happy to see people who are committed to serve the community/ church.	4.56	0.67	Always
3	I am inspired to get involved in social action programs.	4.43	0.77	Always
4	I feel blessed in participating in the activities of the community/church.	4.53	0.71	Always
5	I appreciate the students who do voluntary works in the school.	4.51	0.69	Always
6	I am happy that many people support the environmental programs of the community/church.	4.53	0.67	Always
7	I am fulfilled in helping the poor to realize their dreams.	4.48	0.71	Always
8	I am happy that students obey the rules and regulations of the school.	4.49	0.72	Always
9	I appreciate people who manage their time well and finish their work on time.	4.55	0.66	Always
10	I am happy that there are effective leaders in the community/church.	4.54	0.69	Always
	Average	**4.51**	**0.55**	**Always**

C.	***COLLABORATION: Through community/church service,***	**Mean**	**SD**	**VI**
1	I am more confident in talking to people engaged in community projects.	4.24	0.84	Always
2	I appreciate the efforts of the different groups to serve the community/ church more effectively.	4.55	0.65	Always
3	I appreciate the value of working together for social justice.	4.44	0.69	Always
4	I treasure the company of the community/church members in helping other people.	4.48	0.69	Always
5	I am happy to help others together with the community partners, even in some little ways.	4.50	0.69	Always
6	I appreciate how people in the community do their role in taking care of the environment.	4.47	0.69	Always
7	I feel blessed to work with others in the community to help the poor.	4.49	0.71	Always
8	I appreciate the efforts of the community in implementing the rules and regulations to maintain peace and order.	4.49	0.70	Always
9	I appreciate people who practice time management in the community/ church.	4.49	0.71	Always
10	I appreciate how leaders in the community/church deal with the people in their area.	4.49	0.71	Always
	Average	**4.46**	**0.54**	**Always**

D.	***UNDERSTANDING SOLUTIONS TO COMMUNITY PROBLEMS: Through community/church service,***	**Mean**	**SD**	**VI**
1	I appreciate the commitment of the community/church in helping the people to address their concerns.	4.51	0.70	Always
2	I treasure the service provided by the people in the community/church.	4.49	1.31	Always
3	I appreciate the efforts of the community in addressing social issues.	4.44	0.73	Always
4	I am happy that many people support the activities of the community/church.	4.49	0.69	Always
5	I am more committed to join groups in helping the community without expecting anything in return.	4.38	0.76	Always
6	I appreciate the people who are committed to work together in protecting the environment.	4.48	0.71	Always
7	I am happy that many people helpthose in need to improve their well-being.	4.51	0.69	Always
8	I respect the leaders in the community/church who implement rules and regulations for the welfare of the people.	4.53	0.68	Always
9	I am happy that many people are cooperative in respecting the time set for the activities of the community/church.	4.52	0.69	Always

10	I appreciate the leaders who could bring people together to help the community.	4.54	0.69	Always
	Average	**4.48**	**0.58**	**Always**

E.	***PREPARATION FOR REAL LIFE: Through community/church service,***	**Mean**	**SD**	**VI**
1	I appreciate the efforts of the community/church in helping the students to become responsible citizens.	4.59	0.66	Always
2	I cherish my experiences in community service.	4.51	0.70	Always
3	I display positive behavioral change on social responsibility.	4.48	0.72	Always
4	I value how the activities of the community/church contribute to my development as a person.	4.52	0.70	Always
5	I treasure my experiences in charitable work.	4.56	0.68	Always
6	I commit myself in protecting the environment.	4.44	0.72	Always
7	I respect the rights of the poor.	4.58	0.66	Always
8	I appreciate the people who follow rules and regulations.	4.58	0.65	Always
9	I value people who manage their time well.	4.60	0.64	Always
10	I respect the advice of leaders to enhance my leadership skills.	4.61	0.64	Always
	Average	**4.55**	**0.51**	**Always**

Table 3.1 Summary Table for Affective Domain

Affective Domain	**Mean**	**SD**	**VI**
New Perspectives	4.47	0.56	Always
Awareness of Community Issues	4.51	0.55	Always
Collaboration	4.46	0.54	Always
Understanding Solutions to Community Problems	4.48	0.58	Always
Preparation for Real Life	4.55	0.51	Always
Overall	4.49	0.54	Always

The involvement of the students in community activities also affects their affective domain of learning. It can be seen from Tables3 and 3.1 that the affective domain received an overall mean of 4.49 which is also verbally interpreted as "always." It means that there have been certain changes in the attitude and behavior of the students after they had participated in the different community activities.

From the five areas rated, the highest mean of 4.55 was also registered under "Preparation for Real Life." Through the community activities, the students learned to respect the advice of leaders to enhance their leadership skills, they valued people who manage their time well, they appreciated the efforts of the community in helping the students become responsible citizens, and they respected the rights of the poor. These basic values of respect, time management, and

appreciation of others are important ingredients to develop a responsible citizen of the community who will be able to function productively.

The FGD results pointed to the feeling of contentment, achievement, pride, and confidence that the students developed during the conduct of the activities.

A study that supports this finding is the meta-analysis conducted on the impact of service learning on students. The study found the multiple benefits of service learning to students, such as enhancement of their self-efficacy and self-esteem, increase in positive attitudes and behaviors related to community involvement, and gains in social skills relating to leadership and empathy (Celio, Durlak,& Dymnicki, 2011).

Table 4 Effects on the Students' Psychomotor Domain of Learning

A.	***NEW PERSPECTIVES: Through community/church service,***	**Mean**	**SD**	**VI**
1	I commit myself to do community service.	4.30	0.83	Always
2	I participate in the activities of the community/church even if it is not part of the curriculum.	4.28	0.84	Always
3	I join programs of the community/church on social action.	4.21	0.88	Always
4	I encourage my friends to do community service.	4.16	0.93	Often
5	I do voluntary work in the community/church.	4.14	0.95	Often
6	I participate in the activities of the community/church that protect the environment.	4.22	0.87	Always
7	I sincerely share food and other material things to the needy.	4.38	0.77	Always
8	I obey the rules and regulations of the community/church.	4.45	0.73	Always
9	I perform the assigned tasks given to me on time.	4.38	0.77	Always
10	I develop leadership skills.	4.29	0.86	Always
	Average	4.28	0.64	**Always**

B.	***AWARENESS OF COMMUNITY ISSUES: Through community/church service,***	**Mean**	**SD**	**VI**
1	I explain to the other students that we can work harmoniously even if we have individual differences.	4.38	0.78	Always
2	I share to my friends how fulfilling it is to serve other people.	4.34	0.79	Always
3	I encourage my classmates to participate in social action-related activities.	4.24	0.86	Always
4	I organize activities that promote social consciousness to the youth.	4.13	0.97	Often
5	I discover new challenges on volunteerism.	4.33	0.80	Always
6	I explain to my friends that we can help to protect the environment.	4.25	0.86	Always
7	I encourage the youth to participate in charitable works.	4.25	0.87	Always
8	I share to other students the importance of rules and regulations in maintaining peace and order.	4.31	0.81	Always

9	I explain to the people the importance of being punctual at all times.	4.29	0.83	Always
10	I share to my classmates my experience of being a leader to different kinds of people.	4.26	0.88	Always
	Average	**4.28**	**0.66**	**Always**

C.	***COLLABORATION: Through community/church service,***	**Mean**	**SD**	**VI**
1	I developed confidence in relating with people.	4.35	0.80	Always
2	I support future endeavors of the community/church on community service.	4.37	0.77	Always
3	I developed skills in working with people for social action.	4.43	0.75	Always
4	I volunteer in the relief drive operations of the community/church.	4.30	1.39	Always
5	I learned how to work with other volunteers in the community/church.	4.40	0.78	Always
6	I participate in the community's/school's program to address environmental problems.	4.28	0.84	Always
7	I join school organizations to share my time, talents, and skills to respond to the needs of the poor.	4.19	0.93	Often
8	I encourage my classmates to follow the rules and regulations of the school/community.	4.31	0.81	Always
9	I coordinate with the people and offices the schedule of activities of the school/community to work more effectively.	4.29	0.83	Always
10	I developed leadership skills in working with different kinds of people.	4.34	0.82	Always
	Average	**4.33**	**0.64**	**Always**

D.	***UNDERSTANDING SOLUTIONS TO COMMUNITY PROBLEMS: Through community/church service,***	**Mean**	**SD**	**VI**
1	I explain to the people that working together as a community can help in solving their problem.	4.34	0.79	Always
2	I explain to my classmates that commitment in serving the community is necessary to realize its goal.	4.25	0.83	Always
3	I organize an activity that promotes the sense of social responsibility.	4.16	0.95	Often
4	I participate in activities that respond to the community/church concern.	4.28	0.83	Always
5	I support the community/church in their programs and activities even if it is not required by my teacher.	4.30	0.84	Always
6	I support the advocacy of the community in protecting the environment.	4.32	0.82	Always
7	I participate in the programs of the community/church leaders in helping the poor.	4.28	0.85	Always
8	I support the community/church in implementing the rules and regulations for the welfare of the whole community.	4.36	0.77	Always

9	I promote punctuality in attending activities to my friends.	4.29	0.84	Always
10	I perform my tasks well in the community/church to set a good example to others.	4.39	0.76	Always
	Average	**4.30**	**0.65**	**Always**

E.	***PREPARATION FOR REAL LIFE: Through community/church service,***	**Mean**	**SD**	**VI**
1	I respect the community's contribution in pursuing my goals in life.	4.55	0.68	Always
2	I continue to do community service in the community/church.	4.34	0.83	Always
3	I organize activities that promote social responsibility.	4.24	0.94	Always
4	I assist the community/church to organize activities as venue of learning for students.	4.29	0.86	Always
5	I continue to do voluntary work in the community/church.	4.26	0.88	Always
6	I support the community/church in their ecological programs.	4.31	0.83	Always
7	I help the community/church in their livelihood programs as one way of responding to the needs of the poor.	4.34	0.81	Always
8	I follow the rules and regulations of organizations.	4.56	0.68	Always
9	I plan my schedules for an efficient implementation of programs and activities.	4.35	0.79	Always
10	I perform my duties and responsibilities as a member and a leader of the organization.	4.42	0.78	Always
	Average	**4.37**	**0.61**	**Always**

Table 4.1 Summary Table for Psychomotor Domain

Psychomotor Domain	**Mean**	**SD**	**VI**
New Perspectives	4.28	0.64	Always
Awareness of Community Issues	4.28	0.66	Always
Collaboration	4.33	0.64	Always
Understanding Solutions to Community Problems	4.30	0.65	Always
Preparation for Real Life	4.37	0.61	Always
Overall	4.31	0.58	Always

There are also effects on the psychomotor domains of learning of these students. Tables4 and 4.1 show the overall mean of 4.31 for the psychomotor domain verbally described as "always." This means that there have been certain changes and development in the skills, abilities, and behaviors of these students after they had performed their activities in the community. Some of the noted changes and development onthe skills and abilities of the students are in the areas of interpersonal, coordination, planning, and leadership. With regard to their behavior, it was recognized that the students who were engaged in service learning developed positive attitude and behaviors toward community involvement exhibited through sharing to others their feelings of fulfillment, promotion of social consciousness, and commitment to community service. They also developed the value of punctuality, obedience, and time management.

From the five areas rated, the highest mean of 4.37 was also registered under "Preparation for Real Life." Through the community activities, the students followed the rules and regulations of the organization, they respected the community's contribution in pursuing their goals in life, they performed their duties and responsibilities as members/leaders of the organization, they planned their schedules for an efficient implementation of programs and activities, and they continued to do community service in the church/community.

The FGD pointed out that the students were able to have new experiences and a hands-on training that enabled them to become self-reliant and motivated to continue to help others. These also contributed to the spiritual growth of the students.

Several studies on service learning support the findings of the current study as the researchers mentioned that students who were engaged in service learning program enhanced their self-efficacy and self-esteem, increased their positive attitudes and behaviors related to community involvement, and gained social skills relating to leadership and empathy (Celio et al, 2011). Additionally, students with substantial hours of service learning, a lot of reflection, and a high degree of motivation attributed to service-learning significantly increased their belief in the efficacy of their helping behaviors (Scales et al, 2000).

It can be seen from the results of this study that service learning has positive impact on the three domains of learning of students involved in the program. This is analogous to the findings of a research which found that service learning may influence the process of intellectual and social maturation in the education of a child by unifying the affective, cognitive, and behavioral domains (Moss, 2009).

Looking at the three domains, it can be noticed that the affective domain received the highest means in all the areas rated. It implies the importance of the affective domain because this is where the processing of information and experiences takes place in order to have better appreciation of these cognitive materials that may eventually lead to a change in the students' behavior and in their psychomotor domain.

It was also seen from the results that preparation for real life had the highest mean score compared to the other sub-dimensions under the different domains of learning. This implies that students who were engaged in service learning acquired change and development of favorable attitude, behaviors, and skills that would make them responsible citizens, which can be attributed to the psychomotor domain of learning.

On the other hand, awareness to community issues had the lowest mean score compared to the others. This may be expected because awareness to community issues is the beginning of the process or in the input level attributed to the cognitive domain.

Problem No. 3: What are the benefits of the programs/activities to the community-recipients?

Table 5 Benefits to the Community-Recipients

Themes	**Significant Statements**
Source of Intervention	The students were very creative. They provided activities that facilitate learning of the residents such as tutoring, and taught several subjects like Math, Arts and Music, Reading, and even gardening. The learning activities they provided contributed to the objective of the center for the residents in taking the Alternative Learning System (ALS) of the Department of Education. We were able to get 100% passing rate. The students were a great help to us in developing the social skills of the children (SPED). The children gradually learned how to interact and communicate with others. They also learned how to introduce themselves and to become functional. The residents enjoyed their presence. It was common for them as adolescence to get bored when they are not busy. This was addressed by the students' presence and the activities they provided to the residents.
Valuable Human Resource	They helped us in accomplishing some tasks like encoding, entry of data in the baptismal book, indexing of books and stamping of envelopes. The students provided assistance during baptism, worship service / mass, catechism and other church activities. The volunteers were big help to us. They assisted us in entertaining visitors. They also help us in doing tasks that require computer literacy since they have this skill. They helped us in cleaning the place. They worked even it was for free. They filled in the hours when we had no have activities for the children. They relieved us from some of our duties.
Contribution to Psycho-emotional wellbeing	We were glad to have these volunteers. Often times, the residents were not visited (or were not ever visited) by their family members and/or relatives, which created unfavorable thoughts and emotions on the residents. They thought that they were no longer loved/wanted and abandoned. The student-volunteers' presence addressed these thoughts and feelings, and somehow satisfied the love and

Themes	Significant Statements
	belongingness needs of the residents. They were welcome to us. They were being appreciated by the kids. The children were happy when they were here. The church was happy and satisfied with the program/activities done by the students. They became our friends, they showed courtesy even outside the church. Some of them also invited us during their family gatherings/occasions.

Results of the interview with the community leaders and the persons directly in-charge of the program showed that service learning had favorable impact tothe community- recipients. This result is supported by other researchers as they quoted that students and community are recipients of the benefits of service learning (Steiner & Watson in Crone, 2013).There were three benefits to the community-recipients identified in the current study which were themed as (a) Source of Intervention, (b) Valuable Human Resource, and (c) Contribution to Psycho-emotional Wellbeing. These benefits/themes were conceptualized from the significant statements of the interviewees as reflected in Table5.

As can be observed, the activities and/or programs provided by the students such as facilitation of learning and tutoring, and development of social skills of the residents were noted to be of importance as additional intervention to achieve the objectives of community. Likewise, the students were valued by the parish and community recipients because they augmented the need for human resources to fulfill some functions which the current line-up of staff in the community could no longer attend to. Moreover, the students' presence was also well appreciated because of the time they spent with the children/residents. This complements the lack of visit from family members and relatives of the residents, thus addressing the psycho-emotional needs of the residents.

Problem No. 4: How can the University sustain the program on service learning?

Table 6 Recommendations on How to Sustain the Service Learning Program

Themes	Significant Statements
Values formation / Awareness of social responsibility	It is the desire of students to change the attitude and outlook of their colleagues to make them more involved in the community and church programs. More participants should be doing this not just for grade or as a requirement for a particular subject but to be involved, promote and support the program voluntarily, and continue the service with awareness of their social responsibility and initiative of serving the

Themes	**Significant Statements**
	poor.
Curriculum development	A significant number of students and faculty suggested to integrate service learning to more Religious Education subjects. The students recommended that values development topics on community and church involvement be included in the REED curriculum. They also suggested to hold bible studies and involvement in church organizations and church youth programs, and to become members of church organizations for their spiritual development. It was recommended that many topics be included or reinforced in the curriculum or in their REED subject. Topics such as "Getting in touch and helping the less fortunate", "Value of respect", "Building confidence", "Exposure and immersion programs for the Church and community" were suggested.
Program improvement	The students wanted to add to the regular activities done in the church and community outreach programs for the poor, feeding, teaching the street children, other environmental programs, and different church activities. The faculty members suggested to establish a Memorandum of Agreement (MOA) with the diocese/parish to intensify the students' involvement with the parish and establish coordination with the Lasallian Community Development Center (LCDC) for their involvement with the community. The respondents from the community and the parish suggested better scheduling and lesser number of volunteers at a time to maximize their involvement and better coordination with the REED faculty in-charge. The students proposed improvements in the condition where they will be sent like better accommodation and provisions for food and water. Likewise, together with the parish and community, they also proposed better planning and orientation regarding the program. On the other hand, the faculty members suggested a support program to volunteer teachers to intensify Lasallian volunteerism.

Table 6 shows the major themes under which the recommendations of the respondents are categorized. The first theme, Values Formation/Awareness of Social Responsibility, pertains to the inculcation of the spirit of service and volunteerism among the students, as well as a change in their attitude. The activities that they will be doing in the community should not be seen just as a source of grade but as a manifestation of their love for others that can be shown through the help that they will be extending to the community. If this will be the perspective of the students when they go to the community, their involvement will be more meaningful not only to them but also to the community-recipients. The second theme, Curriculum Development, refers to the activities or topics that may be integrated in the curriculum or in the other subjects of the students. Through the integration of the said topics and activities, the students will be more prepared to go out in the community and serve. They will develop better understanding of the community and its situation, thereby giving them a clearer perspective of the kind of service that they will be giving. The last theme is Program Improvement. The recommendations on additional activities to be done, formal agreement between the school and the community, proper coordination with the units involved in community service, improvement in the scheduling of activities and in the conditions where the students will be sent all aim to improve the present program implementation which will result to a better structured service learning plan.

Problem No. 5: Based on the results of the study, what unique model of service learning could be proposed?

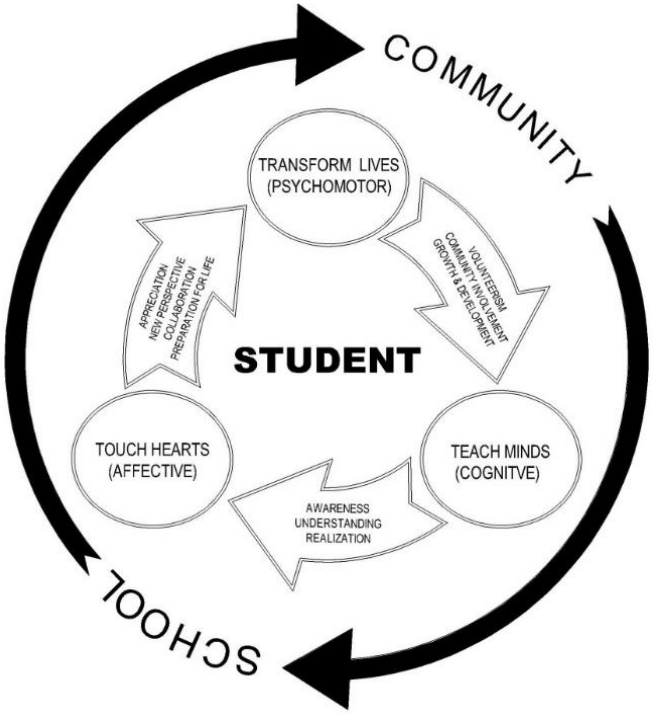

Figure 2. DLSU-D Model of Service Learning

The model shows the different processes involved in achieving the goal of service learning through the Lasallian way of teaching minds, touching hearts, and transforming lives. Several facets of learning happen before progressing to the next domain.

The progression starts from teaching minds which is the cognitive domain of learning. Service Learning is integrated in the syllabus of the course. Concepts are taught in the classroom and the students are eventually introduced to service learning through community exposure. Through this, students become aware of the issues in the community, gain better understanding of these issues, and further realize the meaning of social responsibility and service –their role to help address community issues. They further realize that involvement to community activities is a good training for them to become responsible citizens and that everyone has a role to fulfill in the community.

The process of realization leads to the affective domain, thus touching the hearts of the students. They learn to appreciate that they are part of and have something to share in the community andfeel blessed in working in the community without expecting anything in return. They also learn to appreciate how people collaboratively and committedly serve the community. Moreover, students involved in service learning appreciate leaders who could bring people together to help the community, meaning they learn to appreciate the importance of leadership as a skill (preparation for life) and gain new perspective regarding rules and regulations being carried out in the community.

These facets of appreciation, gaining of new perspectives, collaboration, and preparation for life lead to transformation of the students' behavior (psychomotor). Changes in their behavior in relation to community involvement are noted. They obey rules and regulations, explain to others that they can work harmoniously despite individual differences, perform tasks well in the community to set good example, develop skills in working with people for social transformation, and respect the community's contribution in pursuing their goals in life. This shows that students engaged in service learning are transformed as responsible and law abiding citizens. They get themselves involved in community service/volunteerism, which eventually contributes to their growth and development, including their spiritual well-being as they find meaning of their lives/existence.

The learning process starts from the cognitive domain of teaching minds to the affective domain of touching hearts and to the psychomotor domain of transforming lives, and the cycle continues. Through service learning, the link between school (classroom learning) and community (experiential learning) is provided for a better growth and development of the student. Furthermore, better relationship and collaboration is also established between the school and community for mutual benefits.

Conclusions

DLSU-D believes that learning takes place when there is actual application of the knowledge and skills learned in the school and if the student can make a connection between academic learning and the world s/he lives in. That is why it integrates service learning in the curriculum.

REED142 is one subject where students are required to spend ten hours of involvement in their chosen community.

The students reported that they participated in the following activities: liturgical and church-related activities; care, help, and support for the needy; environmental care and protection; clerical work; and organizing events. These activities had positive effects on their cognitive, affective, and psychomotor domains of learning. The greatest impact was noted on their affective domain, which received the highest means in all the areas rated. Of the sub-dimensions measured, preparation for life received the highest mean score while awareness to community issues had the lowest mean score.

The students' involvement in the community had favorable impact on the community- recipients. They served as the source of intervention and valuable human resource and they contributed to the psycho-emotional well-being of the people concerned.

Recommendations

Because of the positive effects of service learning to both the students and the community-recipients, the program is recommended to be continued but proper coordination with the units concerned should be done and the arrangement should be formalized through a Memorandum of Agreement (MOA).The coordination of all the units involved in the implementation of the Service Learning Program will assure the program's preservation and quality. It is also in this way that the program is regularly reviewed and improved to ensure that it really upholds its purpose.

To ensure the best results for both the students and the community, proper orientation needs to be done prior to the participation of the students in the service learning program. The topics and activities recommended by the students should be integrated in the different subjects they will take so that they will be more ready for their community exposure.

The study resulted to a model of service learning that is uniquely DLSUD's. This model shows the different processes involved in achieving the goal of service learning through the Lasallian way of teaching minds, touching hearts, and transforming lives. This may be used not only in REED classes but also in all other classes that integrate service learning. Through its widespread use, it is hoped that the link between the University and the community will be further strengthened and that the students will be able to develop a higher level of awareness, understanding, and realization for their cognitive domain; appreciation, new perspective, collaboration, and preparation for real life for their affective domain; and volunteerism, community involvement, and growth and development for their psychomotor domain.

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STUDENTS' PERCEPTION OF e-CLASS AS A LEARNING TOOL: THE DE LA SALLE UNIVERSITY-DASMARIÑAS EXPERIENCE

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Abstract

Universities around the world are constantly searching for means to improve the delivery of knowledge and subject to their students. De la Salle University-Dasmarinas, in a bid to take advantage of the e-technology, through its blended learning strategy, has virtually cut in half the classroom course work, resulting in savings and unprecedented access to on-line sources. This study was primarily conducted on Political Science junior students of said course because they are considered the best sampling group in the university strata. The study utilized the descriptive survey research design and data were gathered mainly through the use of the questionnaire. Descriptive statistics was then applied. The study involved the entire third year students taking up Political Science at De la Salle University-Dasmarinas in the first semester of school year 2015-2016. There were forty four respondents who answered the questionnaire.

While the e-class has its advantages such as allowing struggling students to practice, improving their internet literacy, changing the classroom pace, demonstration of other skills, learning of current events and improving content acquisition; it has also its inadequacies such as the lack of suitable materials, lack of interest on the part of students, poor technical and physical infrastructure, insufficient technical knowledge, absence of appropriate guidance and inadequate period of time to answer assessments. Indeed, it has been generally observed that while the e-class has its perks and advantages, it has also drawbacks which this study hopes to address and thus, be given adequate attention.

Key words: e-class, technology, learner

Introduction

With the introduction of the computer and the internet into our lives, the means of communication and information not only changed but also the means that education is being taught in the classroom. In this aspect, e-learning has been adapted by many institutions to answer the trends in a changing educational landscape. e-learning (Liu, et al, 2010) in higher education can be understood as 'technology-enhanced teaching and learning within an education institution', and e-learning as 'instructional content or learning experiences delivered or enabled by electronic technology. It is also defined as learning facilitated and supported through the use of information and communications technology' to deliver content (learning, knowledge and skills) on a one-way (asynchronous) or multi-way (synchronous) basis. Indeed, (2010) it has been generally known that barriers to e-learning adaption include factors such as time commitment and workload issues (including the academic priorities for research), poor leadership, information technologies self-efficacy, lack of effective staff development and implementation issues. There have also been concerns about the cost and technology required for implementation. Concerns also arose on whether e-learning strategy should be set up at institutional level, implemented at faculty level or embedded in curriculum design.

Nevertheless, in spite of these perceived barriers, institutions like De la Salle University-Dasmarinas have adapted the e-learning strategy through the e-class embedded in its school book design. Its main reason was to improve the delivery of instruction by the use of technology and offer something new and unique to its tertiary students. e-learning (Sinclair, 2016) also provides students with better access to education, cuts costs, generates more knowledge and gives learners flexibility and more interaction.

There have been varied reactions to its implementation in both the negative and positive perspectives among students. Thus, this study is designed to determine the validity of those views to improve this latest venture into the realm of educational instruction. The researcher firmly assumes that the extent of the use of the e-class as a tool of learning as in the case of De la Salle University-Dasmarinas enhances the satisfaction of students as it will arouse their interest in the lessons being discussed in the e-forum, therefore, catching their attention and thus, they will learn more efficiently while at the same time enjoying it. This research, thus, took interest to conduct a study among students, specifically Political Science students, on the extent of the use of the e-class as a learning tool and to assess perspectives in its implementation to improve its viability. This sample of students is deemed objective as they are unafraid to express their views and are not inclined to the use of technology. The understanding of these students' perspectives and needs (Chong et.al., 2016) is important to access the effectiveness of internet-based delivery and thus, address these issues thoroughly by the institution's support services.

Background of the Study

The e-class phenomenon is virtually new to the students of De la Salle University-Dasmarinas as it was only introduced approximately five years ago. Its first purpose was to supplement lessons in the classroom in what was termed as a web presence (6 hours/semester). Later, it was expanded to virtually cut teaching time into fifty percent in the classroom and the other fifty per

cent in its school book (Neo Platform). This was called the Blended Learning. e-class professors must of course, undergo training before they can go into e-learning sessions.

This is necessary as teacher support (Fryer and Bovee, 2016) has a tremendous impact on the students' motivation to learn in this set-up. First, there is a basic course required for all those engaged in e-class and additional seminars for those who would like to adapt a blended learning strategy. A professor should be issued a third certificate which certifies his qualification to teach e-class in a blended setting and must also pass the annual evaluation by students on the quality of the education they received through the school book. This integration (Chang, 2016) of e-learning and face-to-face learning is to ensure that this process can stimulate the learners' interest, monitor their progress, provide them with feedbacks and guide them to expected goals. Some students took positively to this new phenomenon in teaching while others are not so dispose to learning their lessons in an e-class in the school book. Thus, this study was conducted on a specific portion of the student populace, Political Science students. This segment contains one of the most vocal and cause-oriented group of students who are not afraid to share their views on any subject.

Statement of the Problem

This research aims to bring to light perspectives on the use of the e-class as a learning tool by students at De la Salle University-Dasmarinas, specifically, those taking Political Science. The study aims to answer the following questions: To what extent are DLSU-D Political Science students connected with the e-class as a learning tool? How do these students perceive the use of the e-class as a learning tool? In what ways do using the e-class as a learning tool benefit said students? What are the problems encountered by the students in the use of the e-class?

Methodology

Research Design

The study utilized the descriptive survey research design. Data were primarily gathered through the use of the questionnaire. Descriptive statistics (Clayton, 1984) was also employed by assigning numerical values to data collected to bring about significant differences in the perception of respondents. The descriptive method was appropriate to the study and in the gathering of data since this was conducted on the use of the e-class as a learning tool for students at DLSU-D.

Population and Respondents of the Study. The study involved the entire third year students taking up Political Science at De la Salle University-Dasmarinas in the first semester of school year 2015-2016. There were a total of forty four respondents who answered the questionnaire.

Research Instruments

The study used a self made questionnaire in order to gather the data needed. It was validated by statisticians who subjected it to a reliability test. It was divided into four parts. The first contained the background of the respondents, the second identifies their perceptions, the third contains the benefits while the last part pertains to the problems encountered. The Likert Scale was also used as follows: Strongly Agree-5/Agree-4/Neutral-3/Disagree-2 and Strongly Disagree-1.

Statistical Treatment :
1. Mean- to measure the tendency of the respondents' perceptions, the mean of the responses were computed by using the Likert Mean Formula (Runyon and Haber, 1991),as follows:Mean= sum of fx/ N where f=frequency of the responses, x=scale and N=total number of respondents.

2.Percentage- translating frequency into percentage was also used for comparison purposes. This was applied to the data gathered regarding the background of the respondents. The formula (Knoke and Bohrnstedt, 1991) used is as follows: Percentage (%)=f/N x100 where f=frequency of response and N is the total number of respondents.

Results and Discussion

The extent DLSU-D Political Science students are connected with the e-class as a learning tool.

In terms of population in the College of Liberal Arts and Communications, the Political Science Course is only third to Psychology and Communication courses, respectively. Most of these students want to purse the legal profession as Political Science is considered a pre-law course. In this regard, such students are unafraid to express their views and opinions and are not really savvy when it comes to the use of technology. Thus, their objectivity and lack of bias cannot be questioned.

The results of the survey would indicate that of the 44 respondents in the study, 16 are males and 24 are females which indicate a new trend in the study of Political Science these days. Political Science, a pre-law course, was once dominated by males but nowadays females outnumber the males. This trend is present among all courses of the university as more females are now enrolling in courses previously dominated by males such as engineering, architecture and philosophy.

With the onset of technology, many professors in the institution require their classes to enrol in the school book, a Neo-based platform where students and professors engaged in discussions, activities and assessments in a virtual classroom setting. Before engaging in such an activity, professors need to submit a course calendar with which to base their lessons and activities. The syllabus is also downloaded into the system. A grading system is also embedded into the portal. A lesson usually consists of three parts: the objectives of the lesson, the lesson proper and an assessment.

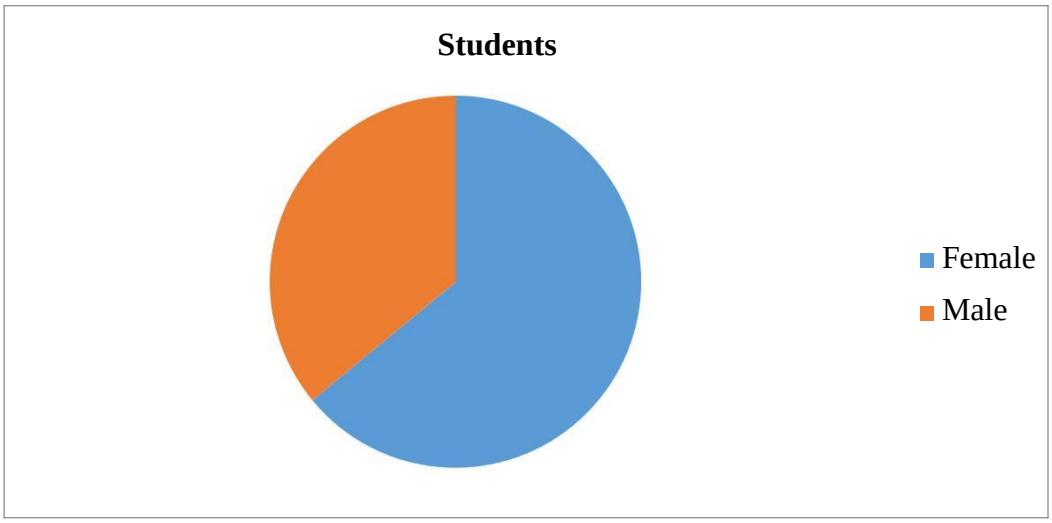

Figure 1 - The disparity of third year male (36%) and female (64%) students in Political Science at DLSU-D.

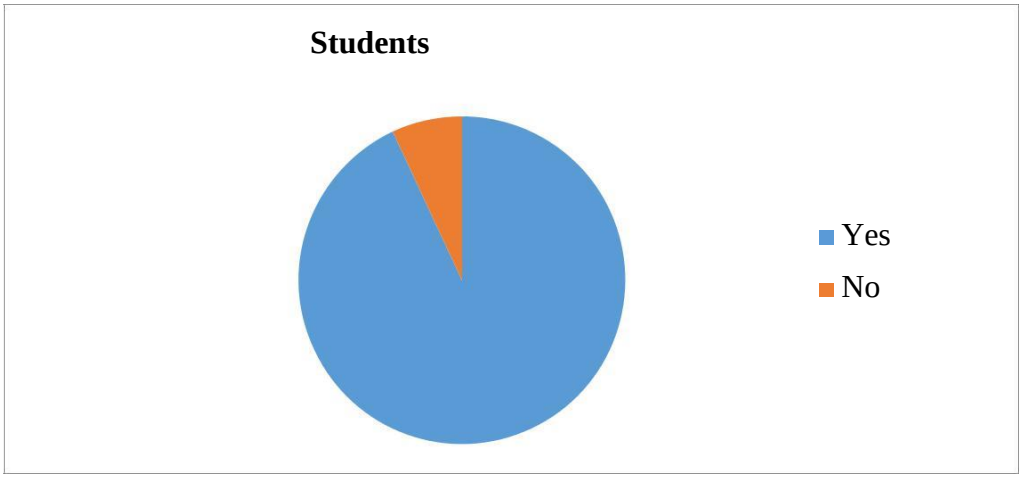

Figure 2 - Usage of the e-class as a learning tool; 93% yes and 7% no to the question.

This high percentage is due to the fact that many professors in DLSU-D are already adapting the e-class as a tool of educating their students. Thus, students have no recourse but to reciprocate. The school book can also be accessed anywhere where internet is available. And any type of gadget can access it including tablets, lap tops and cell phones. Nevertheless, satisfaction and usage (Aparicio, et.al., 2016) reflect on the students' positive perception of the e-class.

While majority of students are inclined to use the e-class as a new method of learning, a big percentage have expressed reservations on its usage. This is attributed to the problems that have been identified in this study.

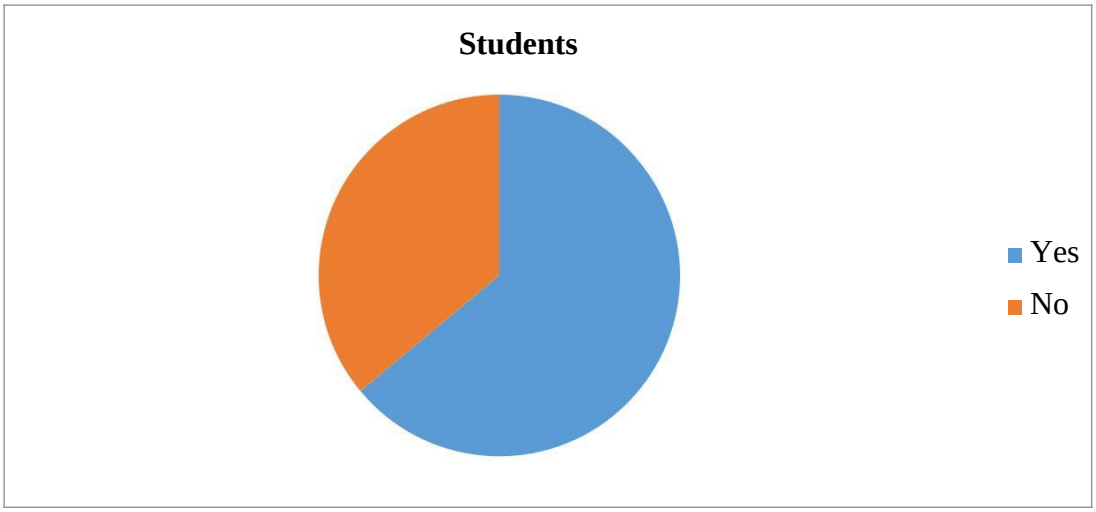

Figure 3 - Preferences of using e-class: 64% do while 36% do not

This can be attributed to the problems encountered by the students as they engaged in on-line learning in the e-class. Many are still not fully convinced of its efficiency and effectiveness. In this regard, teachers (Oluwatumbi, 2015) need to be well instructed on the use of technology and the benefits of information technology resources in the teaching and learning structure.

While the university provides internet facilities to students in its bid to make students digitally literate, these are not enough to cater to the needs of a vast majority as space and time is limited in its Electronic Resource Services. Although most students have their own internet connections at home, a good number goes to the internet shops to access their e-classes in the schoolbook. As this entails additional expenses and exposure to criminals who pickpockets or robs them, some students have a negative attitude towards the e-class.

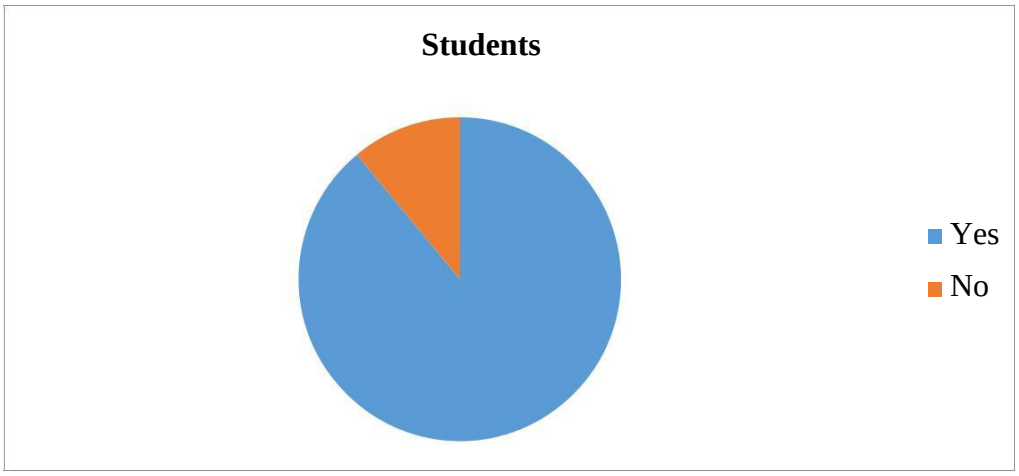

Figure 4 - Internet access at home: 89% do 11% do not

This data is understandable as most of the students in DLSU-D are well-off and have the means to have all-day access to the internet. There are also quite a number of companies these days

which provide cheaper and more accessible internet service. Some students actually consider access to the internet a necessity in the face of today's reliance on e-technology.

The Philippines however, has one of the slowest internet services in the world, ranging only from 1 mbps to 2 mbps on the average.

Indeed, in this modern age, most of the youth are computer and internet literate which resulted in a high percentage of results. The e-class embedded in DLSU-D's school book is also user-friendly, that is why, it only requires minimal knowledge to operate its system and students can easily access its contents.

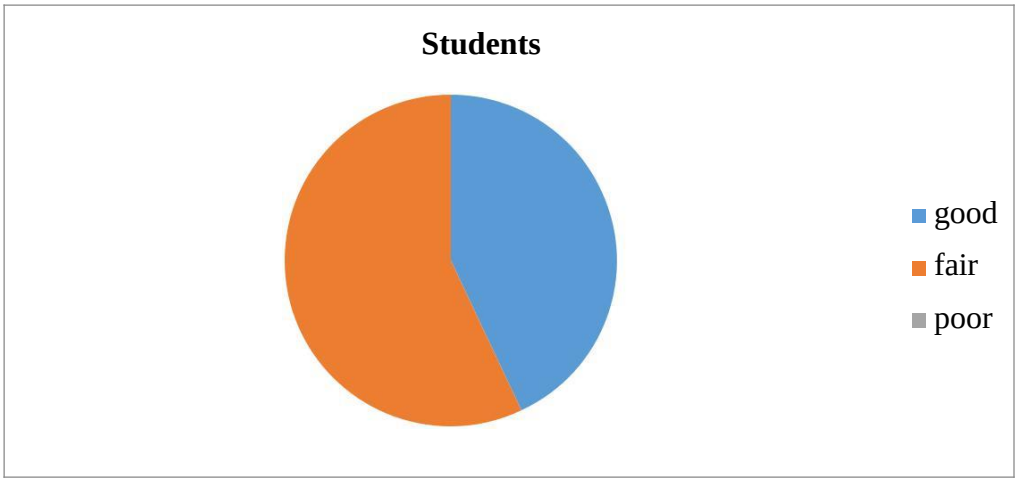

Figure 5 - Students who felt knowledgeable in using e-class: 57% felt good; 43% felt quite good/fair. No students felt poor in this aspect.

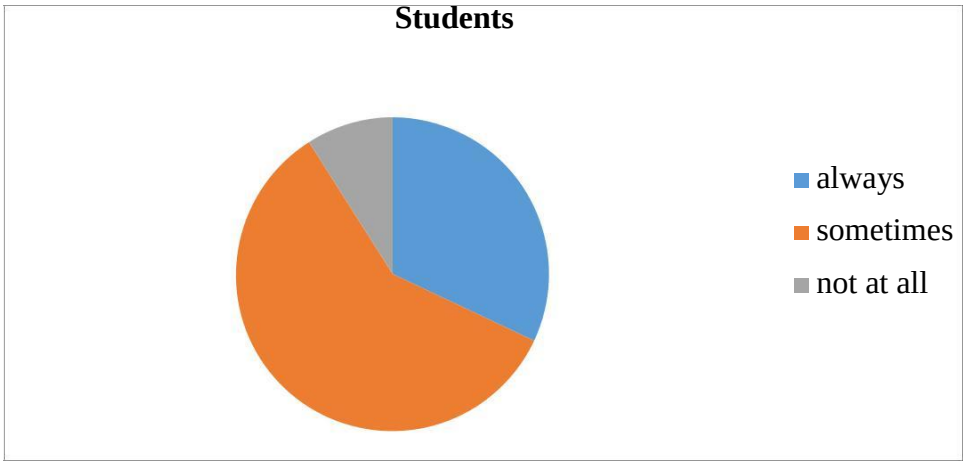

Figure 6 - Students who use e-class as a tool of learning: 32% always; 59% sometimes and 9% not at all

Those who always use it are of course students who avail of other services provided in the e-class such as chat and group-sharing. There is also growing recognition (Harrati, et.al. 2016) among institutions in considering e-learning as an integral and important part of education.

Consultations with faculty members may also now be conducted through the e-class and usually students use this feature to air their grievances to the concerned faculty.

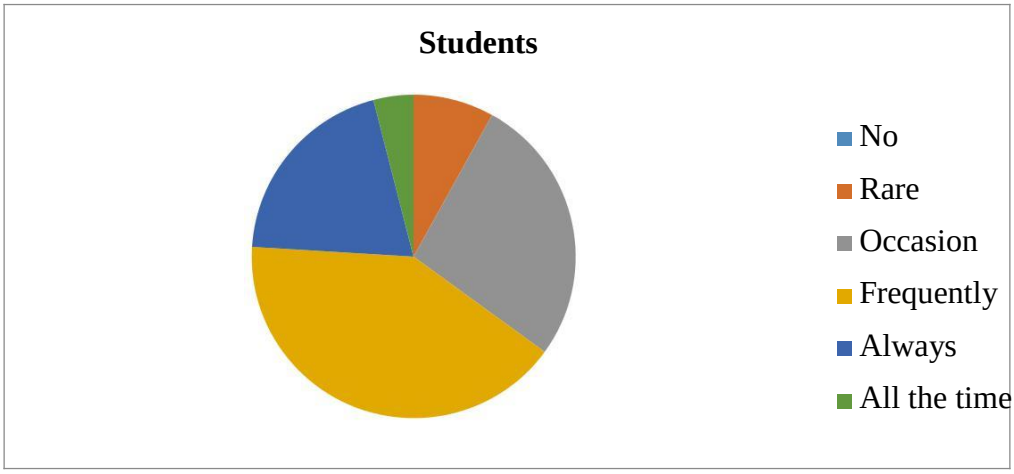

Figure 7 - Frequency of visiting the e-class: 4% all the time; 8% rarely; 20% always; 27% occasionally; 41% frequently and none said never

Many of the students are really frequent users because of the assessments to be answered, lessons that are embedded and some power point presentations that are downloaded. Many subject materials are also found in the school book. The subject syllabus is now also only available in the school book. Professors are making it a point to inform their classes on the first day of classes about the e-class and also provides them with the 8-letter password to access it.

Political Science students' perception on the use of the e-class as a learning tool.

The e-class as a learning tool has received mixed reactions from the students. Some consider it an advantage and an essential aspect of learning while a good number perceived it as inefficient and ineffective.

Table 1- Students' responses to the impacts of using e-class

e-Class Perceptions as a Tool of Learning	**Mean**	**Interpretation**	**Ranking**
Using it makes access to relevant learning easier	3.7	Agree	Second (Tied)
It makes more effective use of classroom time	3.5	Neutral	Fifth (Tied)

e-Class Perceptions as a Tool of Learning	**Mean**	**Interpretation**	**Ranking**
Allows handling professors with different styles	3.4	Neutral	Eighth
Using it makes answering activities easier	3.8	Agree	First
Using it makes learning more effective	3.4	Neutral	Ninth
Using it increases my interest in the subject	3.3	Neutral	Tenth
It increases quality of teaching and learning	3.2	Neutral	Eleventh (Tied)
I am hesitant to use features in school book	3.5	Neutral	Fifth (Tied)
It makes me more confident in answering tests	3.7	Agree	Second (Tied)
It limits my choices of learning materials	3.6	Agree	Fourth
It helps us gain knowledge outside of class	3.2	Neutral	Eleventh (Tied)
I can enhance its use to learn more effectively	3.5	neutral	Fifth (Tied)

Most students agree that using the school books makes answering activities a lot easier as they have all the resources at their finger tips although there is a limitation as to finding learning materials. By this we can say that there is a positive attitude towards the e-class as reflected in their mean scores. Thus, we can conclude that the e-class is an important and vital tool of learning which can be applied nowadays. This attitude (Fatahi and Moradi, 2016) is of course, also influenced by the personality and goals of the student.

The Benefits of using the e-class as a learning tool.

While there are reservations, all students agreed that the e-class is beneficial in many ways. One of them is that students are encouraged to participate in the activities because they are not in an intimidating environment of the classroom. Students who are not good in class discussions sometimes excel in the e-class because they feel more comfortable and relaxed in their confines of their homes.

Table 2 - Students' perceived benefits of e-class

Benefits on the e-class as a Tool of Learning	Mean	Interpre-tation	Rank
It reinforces and expands contents learned	3.5	Neutral	1st
It increases motivation to learn new concepts	3.4	Neutral	7th
It allows adjustment to different teaching styles	3.4	Neutral	7th
It allows demonstration of other talents	3.5	Neutral	1st
It makes me more internet literate	3.5	Neutral	1st
It allows struggling students to practice	3.5	Neutral	1st
It changes the pace of classroom learning	3.5	Neutral	1st
It allows learning current events and news	3.5	Neutral	1st

This is understandable, considering that students still view the e-class as an imposition rather than as a tool of learning. Some prefer the actual learning to happen in the classroom while others are not still familiar with the technology involved in e-learning. This passive attitude can also be traced to the students not really seeing it as a positive undertaking on the part of the institution to improve the delivery of instruction. The real culprit however, is the attitude and lack of skill on some professors whose e-class techniques and strategies are sometimes boring and inefficient.

The Problems encountered by the students in the use of the e-class.

It is only normal that a new method of learning will face challenges in its initial stages of implementation. Thus, various problems were identified by the students as they begin to adjust to the virtual learning offered by the e-class. However, most of them can actually be remedied by the additional training that can be given to professors who chose blended learning as their new method of instruction.

While most students are in agreement that problems persist in its implementation; garnering the highest points are the difficulty in finding suitable materials, insufficient time and lack of guidance. In this regard, professors can really help by being considerate to the needs of students by giving them ample time, guiding them as to the materials to be used and educating them about the features of the e-class. The lack of interest by some students reflects the need for innovation to make more challenging and exciting activities. Such internet-based learning (Zhang et.al., 2004) reflects the growing and ever-encroaching demand for a variety of ways of delivering e-education. The poor technical infrastructure is an indication of the students' frustration as to the availability of internet facilities and the inconvenience of having to find an internet cafe. While there are available computers at the Electronic Resource Services (ERS) of the university, these are not enough to cater to the volume of students who are given only a

Table 3 - Problems encountered by students in using the e-class as a tool of learning.

Problems in the Use of e-learning in the Schoolbook's e-class	Mean	Interpre-tation	Rank
Insufficient time to answer assessments	3.8	Agree	2nd
Poor technical and physical infrastructure	3.7	Agree	4th
Lack of computers	3.6	Agree	7th
Difficulty in finding suitable materials	4.0	Agree	1st
Insufficient technical knowledge	3.7	Agree	4th
Lack of guidance to gain skill and knowledge	3.8	Agree	2nd
Lack of interest on the part of students	3.7	Agree	4th
Insufficiency of financial resources	3.6	Agree	7th
Lack of support from administration	3.6	Agree	7th

limited time to use the facility. Indeed, there are still kinks to be resolved and this is just normal in the introduction of a new educational set-up. Other problems posed by the students are: The lack of notice that there are assessments to be answered, poor internet connection in their homes, activities which are not graded, decrease in attempts even if caused by internet interruptions, noise in computer shops and lack of internet access at home.

On a positive note in the area of learning outcomes, it has also been found out that indeed, students have higher scores in on-line assessments when compared with the face to face pedagogy. This could be attributed to the fact that students have accessed to more learning materials, more time to reflect on their answers and better equipped to process the questions asked. This is a big step in the right direction for the use of the e-class as a tool of learning.

Conclusions and Recommendations

The use of the e-class as a tool of learning is now being utilized by Political Science Students as a major source of knowledge and education. This is attributed to the latest university policy to make use of technology to improve subject delivery. Students likewise, demonstrate a positive attitude towards this new learning method as most of them have internet access. While many are undecided, some students view the e-class as a positive undertaking. These doubts are anchored on the poor technical knowledge of professors, lack of adequate techniques and inadequate physical infrastructure. And yet it is undeniable that e-tech improves practical application and better course understanding (Yanuschik,et.al.,2015) . Most students have a passive attitude towards the benefits of e-learning although they are in the borderline of agreement. This illustrates that students are not yet totally convinced as to the viability of the e-class as a learning tool. While this is not a positive sign, this provides a signal to administrators and faculty alike to further improve the intricacies of the e-class for the students to fully embrace its implementation. All the students agreed that there are problems in the implementation of the e-class as a tool of

learning. This is understandable as this is true in all new undertakings but over time these failings can be assessed and addressed for a smooth and flawless process to be implemented.

Thus, it is recommended that the problems mentioned in the study be addressed by De la Salle University-Dasmarinas to make the e-class a more effective tool of learning. These cannot be left unresolved as the success of this endeavour hinges on learner satisfaction and system efficiency. While these problems can be remedied and neutralized, more trainings must be conducted for professors to be more effective facilitators of e-learning. New methodologies and techniques must be introduced constantly to the concerned faculty to further improved content delivery. Aside from the 3 stages of mandatory trainings, the faculty must also undergo specialized seminars to give them an edge in the holding of e-classes. Students should be given different motivations to make the e-class more exciting. These motivations can be in the form of grade incentives, creative strategies or exciting academic rewards. A professor has in fact introduced gaming as an instrument for students to immediately answer the e-class assessments. Evaluations on a semester's basis have also been conducted to weed out ineffective facilitators. More studies can also be conducted to make the e-class a truly meaningful experience for students of DLSU-D e.g. a research which also includes the faculty and measures the degree of learning. Indeed, this study can be considered as only a tip of the iceberg when it comes to addressing the issues on the e-class as an effective tool of learning. More in-depth researches on the subject will totally eliminate the hitches and glitches associated with e-learning.

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EVALUATION DEGREE OF KNOWLEDGE MANAGEMENT PRACTICE IN JORDANIAN UNIVERSITIES, AND ITS RELATIONSHIP TO OCCUPATIONAL EMPOWERMENT, AS VIEWED BY THE FACULTY MEMBERS

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Abstract

This study aimed to identify the evaluation degree of knowledge management practice in the Jordanian universities, as viewed by the faculty members, and its relationship to the occupational empowerment. The study sample consisted of (382) faculty members in the Northern Province universities, who were selected randomly from the study population, totaling (500) faculty members. To achieve the objectives of the study, the researchers constructed a 51-items questionnaire, distributed over the knowledge management and occupational empowerment domains. The study employed the descriptive, analytic method, and was carried out during the first semester of the academic year 2016/2017.

The results showed that the evaluation degree of the knowledge management practice was medium. The order of knowledge management areas was as follows, respectively: knowledge generation area, first; knowledge employment area, second; knowledge organization and storing area, third; and the required environment area came fourth. As for the evaluation of the occupational empowerment practice, it came with high degree. On the other hand, the order of the occupational empowerment areas was as follows, respectively: authority empowerment area, first; sharing the decision-taking area, second; clarity of the objective area, third; and training and development area in the fourth and last order. In addition, the results showed a positive and statistically significant relationship between knowledge management and occupational empowerment.

Keywords: Knowledge management, occupational empowerment, *Jordanian Universities*

Introduction

The roots of the managerial practices across the human history date back to the ancient civilizations. They are inherent to the humankind in his endeavor toward satisfying his security and living needs, in cooperation with the human beings. Nevertheless, management as a science, was not referred to and written about until the beginning of the twentieth century. Many administrative and managerial theories, principles and practices were developed to form a wide and wealthy knowledge base. Nowadays management is the success key of any collective human effort in any domain or activity. Even more, it is the key of the advancement and progress of nations (Hareem, 2010).

Universities are knowledge-acquisition oriented, meaning that they seek to reflect excellence in various community organizations. The role of the universities is more rooted in being held responsibility of applying principles, policies and knowledge abundance, so that they will be examples of the remaining community institutions to follow suit. Knowledge management processes could be applied by adopting a pool of strategies and policies that facilitate this process, and make it integrated to the administrative, academic and technical processes inside the university (Wodman & Wang, 2005).

Belawi & Hussin (2007) see that the faculty members of the universities are embodiment of the knowledgeable workers, as they are burdened the responsibilities for the development, analysis and application of the disclosed objectives in the curricula. This means that they are the main responsible people for applying and transmitting knowledge to the students. Universities can make its learners an integrated part of the process of generating, initiating and spreading knowledge throughout this significant educational institution. Subsequently, students also are held great responsibility that takes them out from mere, negative learners to be themselves workers in knowledge, like the faculty members in the universities.

The whole world manages its various institutions, achieves its objectives in the different areas, such as economical, educational and social areas, depending on knowledge management, which has characteristics that work to achieve the optimal results. Such knowledge management keeps these institutions in an advanced, competitive position, in which the institution maintains its sustainability, progress and development, relying on the scientific advancement, and making good use of the technological development. Therefore, for the educational institutions to advance, they are required to introduce knowledge management in their departments and administrative hierarchy. They are also required to prepare their personnel very well to accommodate and practice knowledge to the best possible levels (Al-Najjar, 2013).

Given the importance of the college education and the services it provides to the community, as well as providing an appropriate, scientific problem-solving method; and for the university to achieve its objectives, it is required to take into account the ambitions, and community expectations. The university is also required to work under a regulatory framework that defines the communication, authority and responsibility lines, in the light of the general objective, which was predefined to it. It also ought to take into account the abilities, capabilities and obstacles concerning the available materials and human resources (John, 2010). The investment oriented from the universities to knowledge management is a long-term one, which requires them adopt and use a number of effective systems; and create organizational culture that is capable to support the application of knowledge management processes. Subsequently, universities are required to shift from faculty members and student affairs management to the adoption of the

concepts for knowledge management, creativity and renovation, in their attempts to realize their organizational objectives (Butcher, 2014).

Due to the rapid development in the communication technologies and information revolution, which imposed on the university education institutions change in their philosophy, objectives, functions and nature of work; it is inevitable to develop the university education to keep pace with the changes and challenges. This is of a significant important as the quality of the university education is largely linked with the advancement of nations. The perception of knowledge became of great value, one of the strategic assets, and a valuable factor in increasing the competitive advantage of the organizations; because of the knowledge explosion that accompanied the globalization movement with its technological, economic, social and political powers (Al-Ali, 2006).

Knowledge management is the process and activities that help the institution generate and obtain knowledge in terms of selection, regulation, use, distribution and transmission of the information and experiences owned by the institution. It is also the process of employing these information and experiences in its different administrative activities, such as decision taking, work procedures and strategic planning (Al-Malkawi, 2007).

On the other hand, empowerment means the subordinates' sharing of their supervisors in both decision making and decision taking within a framework based on defining the responsibilities, mutual trust, training and support, for the sake of excellence in achieving both objectives of the organization and its workers, and work continuously toward its improvement (Al-Tarawneh, 2007).

In this concern empowerment of the employee is raising his/her potentials to take decision by himself/herself, without the guidance or counseling of the management. As such, the main objective of empowerment is to provide conditions to allow all employees contribute, with their utmost energies, to the continuous improvement efforts. Thereupon, the empowerment term includes sharing the decision making process with the other managerial levels; which means that it is more than authorization. In this regard, the employee even feels responsible for works beyond his/her job limits; so the whole organization will operate in a better manner (Bin Naheet, 2008). The importance of empowerment principle stems from its relationship to the human factor, and how to activate his/her energies, abilities and talents in the continuous development and improvement of his/her institution. Some people see that empowerment has its decisive role in the progress (or failure) of the institutions in applying the total quality management (TQM), because the workers are the tool by which these thoughts, plans and activities are implemented (Al-Otaibi, 2005).

Sveiby and Lloyd (2001) see that it is difficult to allocate a single standard definition of knowledge management. Even though, two tracks of activities and efforts are interested in the concept of knowledge management. The first looks at knowledge management as being the information management itself; and followers of this trend consider knowledge as the information processed by the information systems. The second is the individuals' track, in which the knowledge expresses the processes that reflect a number of somewhat dynamic, complicated and changing skills.

Still, some others defined knowledge as the "optimal and effective use of the creative skills, innovative ideas, and distinguished thinking, which are reflected in the form of an additive value for the organization, and support and enhance its competitive ability (Jad Al-Rabb, 2006). The

importance of knowledge is illustrated through availing continuous organized knowledge, and translating the same into a practical behavior, which serves the organization objectives through achieving the efficiency and effectiveness. Moreover, knowledge management aims at providing remarkable competitive abilities and advantages (Al-Kholoof, 2007). Knowledge management requires the existence of knowledge managers; and knowledge enlightening is better than modeling it, as sharing knowledge is more difficult than producing it; access to knowledge is only the beginning; there are no ends of the knowledge management activities (Yaseen, 2007).

Alwani (2001), Al-Ali, Qandilji and Al-Omari (2006), and Hasan (2008) indicated that the processes of knowledge management are summarized as follow. Knowledge diagnosis, one of the most important processes in knowledge management processes, which begins with defining knowledge and seeking for both the place of its existence and knowledge acquisition. Knowledge acquisition refers to the process through which the organization seeks to obtain, store, save and retrieve knowledge. The organization may spend much effort to acquire knowledge, yet, it may be vulnerable to loss, either by forgetting or inability to access such knowledge. Knowledge transfer, as knowledge needs organizational arrangements, and supporting culture to transfer and share knowledge throughout the organization. Knowledge application, which means making knowledge more suitable for use in the implementation of organization activities and more related to the tasks that the organization performs. Finally, knowledge storage and retaining it for retrieval, as may be needed.

Durrah and Al-Sabbagh (2010) define occupational empowerment as "providing employees full liberty, responsibility and authority in taking the decisions related to their works and occupations." Hmood (2010) defines occupational empowerment as, "the environment where ability and aptitude are available for the workers to take responsibility in the development and improvement of the basic activities; to satisfy the consumers' needs through relations and clear results, and to achieve the benefit and objectives of the organization."

Gibson, Ivancevich, Donnelly & Konopaske (2006) define occupational empowerment as "allowing individuals to take decision to complete work within the specified timeframe, and ensuring the use of their skills and talents; as well as the resources available for them to take the right decision to complete their occupational tasks." From the above definitions, one can easily conclude the differences in the definitions of occupational empowerment, due to the differences of the views of every researcher. However, the researchers of this study define the occupational empowerment as "the university's granting and authorizing the powers to the faculty members to take the relevant decisions, each proportional to his/her work nature and academic specialization domain, in a manner that achieves interest and benefit for the university, the student and the community at large."

Effendi (2003) and Abdul-Baqi (2005) see that the importance of the occupational empowerment is represented in the following aspects: willingness of the organization to become more responsive to the needs of service recipients, and reducing the number of the managerial levels in the hierarchy of the organization. The higher management should not be preoccupied by the daily routines; rather it should focus on the long-term strategic issues, and optimal utilization of all the available resources, especially the human resource to develop the provided services. It is also represented in the speed in decision taking; releasing creative and innovative abilities; and. curtailing the unnecessary administrative levels and jobs. In addition, offering the individuals more responsibilities and enabling them acquire more feelings to accomplish more works in their work areas.

Empowerment focuses on the ongoing training and motivation through encouraging workers to work, which requires the organization's objectives be clear in order to realize them. It also focuses on the importance of change through convincing the workers, and through respecting the workers and self-denial (Al-Lawzi, 2010).

Dimensions of empowerment are clearly present in sharing information, problem solving from bottom upwards, task independence, trend formation, self-management, and continuous training and development (Greasley, 2005).

Many subject-related literature and previous studies underlined the barriers in empowerment application, such as, lack of suitable workers' training, inefficient leadership, and dominant bureaucracy. Moreover, empowerment represents an easily misunderstood idea, which works toward provoking fear among the managers that their subordinates are more capable and skillful than they are; as well as the fear of the subordinates of accepting responsibility, decision taking and problem solving (Al-Amian, 2005).

In order to apply workers' empowerment in the organization, a pool of basic requirements should be available for the occupational empowerment process. For instance, administrative trust; social support; goal and future vision definition; highly qualified work team members; and continuous workers' training (Al-Ibrahim, 2008 & Hareem, 2010).

In the light of the above, we conclude that knowledge management has wide effects in the stability and continuity of the university, as it affects its various administrative and managerial aspects. It also tells that access of this knowledge requires occupational empowerment. Accordingly, it is strongly believed that knowledge management in the university has its vast effects on the nature of the academic and managerial works inside it. Furthermore, knowledge management has a wide role in higher education through its direct effects on the academic and administrative works particularly aspects of leadership, educational policies, and everything that concerns work in these universities. In addition, knowledge management is an inevitable factor to achieve affinity between realization of the university goals and those of its workers. Finally, administrative empowerment is of great importance in the development and growth of the university, and in upgrading the efficiency of the workers in the right decision taking and implementation, which all contribute to the achievement of the university and workers' objectives, with highest quality and lowest amounts of time and efforts.

Knowledge management topic was the focus of many researchers in the recent times. Al-Agha & Abu Al-Khair (2012) concluded that the reality of application of the knowledge management processes was low. The results also did not show statistically significant differences ascribed to the academic degree and experience variables, in terms of the factuality of applying the knowledge management processes.

Al Othman (2013) made a study, which results showed that the perception of the faculty members and personnel about the importance of knowledge management was high. The results also showed that the reality of knowledge management application in the university was medium as viewed by them. The study of Rababah, Al-Shboul & Al-Zaghoul (2013) showed that the knowledge management processes application in the University of Jordan ranged between low and medium. Al-Telbani, Budair and Al-Rqgeb (2015) made a study, which results showed a positive relationship among the requirements of the organizational culture knowledge management: organizational structure, leadership and information technology. Hussain, Bischoff, Willy, Roncace and Walsh (2015) conducted a study in the United States of America. The results

showed that the factuality of knowledge management application in the United States ranged between medium and high. The results also showed a positive correlational relationship between the factuality of knowledge management processes and the research productivity with certain faculty members in the American universities.

In this concern, other researchers tackled the issue of the occupational empowerment. Al-Assaf's study (2006) showed that the level of the occupational empowerment with the academic leaderships in the public universities in Jordan was medium. The results further showed positive statistically significant relationship between the level of occupational empowerment practices and organizational commitment. The study of Al-Zaidaniyeen (2006) showed that the examinees' perceptions of the administrative empowerment practice and total quality was high. Results of the study of Al-Tarawneh (200&) indicated that the factuality of the female's occupational empowerment in the public universities in Jordan, with its five dimensions, came with medium level. In addition, the sample participants' perceptions of the organizational, social and personal obstacles, which affect the woman's empowerment, were at a medium level in the following descending order: social, organizational, and personal obstacles. The results also indicated the existence of a statistically significant effect of the personal obstacles, period of service in the university, and interaction between the service period and the academic degree. Finally, there were statistically significant differences between the woman's managerial empowerment in the public universities in Jordan and the personal obstacles variable.

Al-Qadi (2009) conducted a study, which concluded that the study sample participants empowerment was medium in all the managerial empowerment domains. The results of this study showed the existence of centralization in the managerial work. Study of Al-Maani and Akhoo Rshaideh (2009) showed a statistically significant effect of the managerial empowerment on the level of the managerial creativity perceived by the examinees. On the other hand, the study did not show statistically significant differences in the perceptions of the examinees toward the managerial empowerment, which could be imputed to their demographic and occupational characteristics, except for the variables of age and gender.

Results of Radi's study (2010) showed a positive relationship between the managerial empowerment and workers' creativity. Moreover, the field study showed a partial support for the managerial empowerment relations with most of the variables of the workers' creativity, and limitation of the responses of the workers' creativity variables about the variance in the workers' perception level of the managerial empowerment practices. Al-Matrook's study (2010) concluded that application of the managerial empowerment in the State of Kuwait was medium about the managerial empowerment dimensions, as a whole. However, the study indicates statistically significant differences attributed to the demographic changes (gender, experience, academic degree, and job title). Finally, the study of Weshah (2012), showed a medium level of both empowerment and authority delegation. There were also statistically significant differences in the respondents' assessment about the level of empowerment and delegation of authority, attributed to the academic degree variable, in favor of the higher (graduate) studies.

The previous studies addressed knowledge management and occupational empowerment as separate variables. The studies were both Arabic and foreign, most of which employed the quantitative, survey method; but some of the studies followed the qualitative method; for instance, Rababah, Al-Shboul & Al-Zaghoul (2013). Still, other studies followed the historical method, such as Husain, Bischoff, Willy Roncace & Walsh (2015). In spite of the diversity of the methods followed, nonetheless, there are similarities in certain aspects and differences in others.

For this study, the researchers benefited from the previous studies in building the study instrument. In addition, they benefited the study subject-related theoretical literature. These studies were also very useful in developing the data collection instrument, recognition of the results of these studies, and comparing them with those of our study. Furthermore, these studies facilitated the use of the pertinent statistical processing, and facilitated supporting certain perspectives concerning the theoretical framework. Given the abovementioned factors, this study is distinct from the previous in its attempt to assess the practice degree of knowledge management in the Jordanian universities, and its relationship to the occupational empowerment, as viewed by the faculty members themselves. In this regard, no former study included addressing these two variables altogether in our Jordanian universities.

Study Problems and Questions

Feeling and concern in this problem stemmed from the importance of the knowledge management, which is one of the most important pillars that underlie the university principles. It is the motive to realize the objectives of the organizations effectively, and acquire the competitive advantage to help in facing the various challenges encountered in both the internal and external environments. In turn, these will enable the university maintain its existing position, and improve the productivity of the faculty members, as well as empower them occupationally in the universities where they work. In this concern, if knowledge management is not optimally utilized, the university performance level, as a whole, will suffer from decline, in a way that may seriously affect the outcomes and functions of the university. The faculty members of Jordanian universities are among the most important capable to make change and development in these universities.

In spite of the many studies that explored the knowledge management and occupational empowerment issues from several aspects, yet, the issue of the knowledge management and its relationship with the occupational empowerment with the faculty members of the universities are still not given the required and appropriate attention in the Jordanian environment; subject matter of the current study. This study, inter alia, aims to highlight the issue of knowledge management in the Jordanian universities, as seen by the faculty members, and its relationship to their occupational empowerment. There is correlation between knowledge management and occupational empowerment, which is the foundation upon which the success (or failure) of the organizations is built. This notion is built on the previous literature about knowledge management and occupational empowerment; the importance of knowledge management in promoting the accomplishment efficiency; as well as the significance of the occupational empowerment in enhancing the managerial work system and increasing its productivity and efficiency;

Thereupon, this study was made to assess the practice degree of knowledge management and its relation with the occupational empowerment among the faculty members in Northern Jordan universities; through answering the following questions.

Question One: What is the practice assessment degree of knowledge management in the Northern Jordan Province universities, as viewed by the faculty members in these universities?

Question Two: What is the occupational empowerment degree in the Northern Jordan Province universities, as viewed by the faculty members in these universities?

Question Three: Is there a statistically significant correlational relation at ($\alpha \geq .05$) level between the practice degree of knowledge management, as a whole, and assessment degree of the occupational empowerment, as viewed by the faculty member'sin the Northern Jordan Province universities?

Significance of the Study

This study is distinct from others in that it addresses a topic that signifies the importance of knowledge management in the Jordanian universities. It is well established that such management greatly affects the behaviors of the faculty members, as well as affecting their degree of empowerment. Furthermore, knowledge management determines the interaction mechanism among the faculty members, university management and the students alike. The results of this study contribute to inform the faculty members of both the public and private sector Jordanian universities about the importance of activating the knowledge management in enhancing and empowering the workers of these universities. The results also inform the officials of higher education affairs in Jordan about the role of knowledge management in the development and strengthening of the occupational empowerment of the workers in the Jordanian universities; through applying the recommendations that emerged from the results of the study. This will positively reflect on the higher education outcomes in Jordan, and provide entire image of the faculty members based on the current reality of the application degree of knowledge management in the Jordanian universities.

Study Limitations

This study covered only the faculty members of the Northern Province universities in Jordan, during the first semester of 2016/2017 academic year. They are therefore the only respondents to the Questionnaire which was constructed 51-item questionnaire.

Statistical Processing:

For the purposes of the study, the researchers obtained the means (M's) and standard deviations (SD's) to answer the first and second question; meanwhile, they used Pearson Correlation Coefficient to answer the third question.

Method and Procedures

For the purposes of this study, the descriptive, analytic method was employed.

Study Population

The study population consisted of all faculty members in the universities of Northern Jordan Province, totaling (2570), during the first semester of 2016-2017 academic year

Study Sample

The study sample consisted of (500) faculty members who hold ranks of professor, associate professor, assistant professor and lecturer. They were randomly selected from the following universities: Al al-Bayt University, Jordan University of Science and Technology "JUST", Al-Yarmouk University, Jarash University, Irbid National University, and Jadara University. A representative sample of the study population was selected consisting of (20%) of the total population. (375) questionnaires were returned, which the researchers distributed as per the following method.

Table (1): Distribution of the Sample Participants (Faculty Members) by the Type of the University (Public, Private)

University Type	**Gender**		**Academic Degree (Rank)**				**Total**
			Lecturer	**Assistant Professor**	**Associate Professor**	**Professor**	
Public University	Male	Number	**29**	**64**	**52**	**41**	**186**
		Percentage	**7.84**	**17.27**	**13.60**	**10.98**	**49.72**
	Female	Number	**17**	**41**	**28**	**21**	**107**
		Percentage	**4.44**	**10.98**	**7.58**	**5.75**	**28.76**
	Total	Number	**47**	**108**	**81**	**64**	293
		Percentage	**12.30**	**28.27**	**21.20**	**16.75**	**78.53**
Private University	Male	Number	**12**	**15**	**16**	**11**	**54**
		Percentage	**3.14**	**3.93**	**4.19**	**2.88**	**14.14**
	Female	Number	**4**	**15**	**5**	**4**	**28**
		Percentage	**1.05**	**3.93**	**1.31**	**1.05**	**7.33**
	Total	Number	**16**	**30**	**21**	**15**	**82**
		Percentage	**4.19**	**7.85**	**5.50**	**3.93**	**21.47**
Total	Male	Number	**41**	**79**	**68**	**52**	**240**
		Percentage	**10.99**	**21.20**	**17.80**	**13.87**	**63.87**
	Female	Number	**21**	**56**	**33**	**25**	**138**
		Percentage	**5.50**	**14.92**	**8.90**	**6.81**	**36.13**
	Total	Number	**62**	**135**	**101**	**77**	**375**
		Percentage	**16.49**	**36.13**	**26.70**	**20.68**	**100.00**

Study Instrument

The instrument was constructed into two parts. The first part was about the evaluation degree of the faculty members' practices of the knowledge management (27 items). The second part was about evaluation degree of the faculty members' practices of the occupational empowerment (24 items). Lickert 5-point scale was employed by giving each item one grade as follows (Very High, High, Medium, Low, Very Low), which are numerically (1, 2, 3, 4, and 5), respectively.

Instrument correction scale

The relative gradient statistical model (Likert 5-point scale) was adopted, to judge means of the study instruments and items. The statistical scale was employed using the following equation:

From 1.00 - 1.80	Very Low
From 1.81 - 2.60	Low
From 2.61 - 3.40	Medium
From 3.41 - 4.20	High
From 4.21 - 5.00	Very High

The scale was calculated using the following equation:

[Maximum grade of the scale (5) – minimum grade of the scale (1)/ Number of the required categories (5)]

$$(5-1)/5 = 0.80$$

The answer (0.80) was added at the end of each category.

Validity and Reliability of the Instrument

The researchers verified the apparent validity of the instrument by presenting it to twelve experienced and specialized professors of the faculties of education in the Jordanian universities. They were requested to read the questionnaire items, assign opinion on its clarity degree, wording accuracy, suitability degree to the area they belong to, and to add, delete, edit, paraphrase, or suggest items. Finally, they were requested to indicate their view, in general, about the questionnaire suitability to the practice degree of knowledge management and its relatedness to the occupational empowerment; unit it came, in its final shape, with (51) items.

Reliability of the two Parts of the Instrument

To verify the reliability of both parts of the instrument, the researchers realized it by the internal consistency according to Cronbach Alfa Coefficient, which was applied to a sample from outside the study sample (n=30).Then the reliability coefficient was calculated. Table (2) shows the internal consistency coefficient according to Cronbach Alfa equation.

Table (2): Values of Cronbach Alfa Internal Consistency Coefficient

Instrument	Area	Reliability Coefficient
Knowledge Management	Knowledge generation	0.93
	Knowledge employment	0.94
	Knowledge organization and storage	0.87
	Suitable environment for knowledge prosperity	0.91
Occupational Empowerment	Power authorization	0.91
	Sharing in decision taking	0.94
	Goal clarity	0.87
	Training and development	0.93

The above values show a high degree of internal consistency and reliability of the instrument, which could be dependable for measuring what it was designed for**.**

Results and Discussion

Results related to the first question, *"What is the practice assessment degree of knowledge management in the Northern Jordan Province universities, as viewed by the faculty members in these universities?"*

To answer this question, the researchers calculated the means and standard deviations of the sample participants' evaluations about the knowledge management, as a whole, and every element of the knowledge management (knowledge generation, knowledge employment, knowledge organization and storage, and suitable environment for knowledge prosperity). Table (3) illustrates the above.

Table (3): Means and Standard Deviation, Rank and Degree of the Knowledge Management Areas, as Viewed by the Faculty Members, Arranged in a Descending Order.

Rank	No.	Areas	No. of Items	M	SD	Degree
1	3	Knowledge organization and storage	7	3.53	0.75	High
2	1	Knowledge generation	6	3.07	0.87	Medium
3	2	Knowledge employment	7	3.06	0.92	Medium
4	4	Suitable environment for knowledge prosperity	7	2.99	0.89	Medium
Areas of Knowledge Management as a Whole			27	3.15	0.79	Medium

Table (3) shows that the practice assessment degree of the knowledge management in the Universities of Northern Jordan Province, as viewed by the faculty members, was (medium) with (3.15) mean. The order of the areas as per the mean was as follows. Knowledge organization and storage ranked first with (3.53) mean and (High) degree; followed by knowledge generation area with (3.07) mean and (Medium) degree. The third rank was for knowledge employment with (3.06) mean and (Medium) degree; and the last and fourth rank was for the suitable environment for knowledge prosperity, with (2.99) mean and (Medium) degree.

To show the results of applying the processes to each of the elements, below are the results for each element.

First Element: Knowledge Generation

Table – 4 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the First Area (Knowledge Generation), Arranged in a Descending Order.

Rank	No.	Items	M	SD	Degree
1	2	University workers obtain knowledge from its various sources.	3.73	0.85	High
2	5	Workers use technology for knowledge expansion and spreading	3.37	1.07	Medium
3	1	The university management employs the workers' abilities and knowledge to approach creativity and innovation stage	3.19	1.15	Medium
4	3	The university management conducts an assessment of the workers' ability on creativity and innovation in generating new knowledge	3.06	1.13	Medium
5	6	The university management recruits the expertise and efficiencies that possess experience and knowledge	2.93	1.2	Medium
6	4	The university management seeks to obtain knowledge generation through (seminars, workshops, and scientific and discovery tours)	2.87	1.25	Medium
Knowledge Generation Area as a Whole			3.07	0.87	Medium

Table (4) concerning the (knowledge generation) area shows that this area came with a medium degree as a whole. As for the items of this area, item (2) stating, "University workers obtain knowledge from its various sources", came first with high degree, which may be attributed to the existence of various sources of knowledge in the university, with easy access to. On the other hand, item (4) providing, "The university management seeks to obtain knowledge generation through (seminars, workshops, and scientific and discovery trips)", had the lowest evaluation with medium rating. This may be ascribed to the acute shortage in the financial support needed

for holding workshops, seminars and scientific tours. This result is in line with that of the study result of Al Othman (2013), which was high; and in agreement with the study of Hossain, Bischoff, Willy, Roncace & Walsh (2015), which ranged between medium and high degrees. Yet, this result is not in line with the study result of Al-Agha and Abu Al-Khahir (2012), which was with low degree; and that of Rababah, Al-Shboul & Al-Zghoul (2013), which came between low and medium.

Second Area: Knowledge Employment

Table – 5 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Second Area (Knowledge Employment), Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
1	3	The university management encourages the works on employing knowledge in the multiple databases	3.23	1.13	Medium
2	5	The university management directs the workers to the mechanisms of using the available knowledge in the multiple databases	3.23	1.11	Medium
3	7	The university management follows-up the workers' application of knowledge when assessing their performance	3.17	1.15	Medium
4	4	The university management employs technology and scientific techniques in solving the problems that face its workers.	3.10	1.15	Medium
5	1	The management invests in the scientific research and encouraging purposeful initiatives for work development	2.95	1.16	Medium
6	2	The management directs for conducting procedural research in the area of their work, to contribute to job development	2.89	1.15	Medium
7	6	The management communicates with the experts to train the workers perform knowledge management	2.88	1.15	Medium
Knowledge Employment Area as a Whole			**3/06**	**0.92**	**Medium**

Table (5) concerning the (knowledge employment) area shows that this element has a medium degree result. It is also noted that the third ranked element, "The university management encourages the works on employing knowledge in the multiple databases", ranked first with medium degree. Meanwhile, the fifth ranked, "The university management directs the workers to the mechanisms of using the available knowledge in the multiple databases", also ranked first with medium degree. This may be due to many reasons, such as the information available in the databases of the university facilitate performing the administrative and academic tasks. Moreover, access to such data by the workers makes it easy for the leaders to use in decisions, both accurately and at very high speed. On the other hand, the item providing, " The management communicates with the experts to train the workers perform knowledge

management", came with lowest evaluation and medium degree. However, this may be explained by the difficult financial conditions the university faces, as training the workers through experts on the practice of knowledge management needs multiple resources, the most important of which is the financial resource. This result is in line with that of the study result of Al Othman (2013), which was high; and in agreement with the study of Hossain, Bischoff, Willy, Roncace & Walsh (2015), which ranged between medium and high degrees. Yet, this result is not in line with the study result of Al-Agha and Abu Al-Khahir (2012), which was with low degree; and that of Rababah, Al-Shboul & Al-Zghoul (2013), which came between low and medium.

Third Area: Knowledge Organization and Storage

Table – 6 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Second Area (Knowledge Organization and Storage), Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
1	6	The management uses the computer in organizing, storing and assorting the data and information	3.71	1.03	High
2	7	The management assorts the information and documents them in easily retrievable methods, when needed.	3.71	1.03	High
3	2	There are special centers in the university management to save and retrieve knowledge, when needed.	3.54	1.05	High
4	1	The university management provides databases that offer knowledge to the workers once requested.	3.46	1.09	High
5	5	The management categorizes the data and information by importance, to make use of them.	3.21	1.10	Medium
6	4	The management depends on archiving the paper documents in knowledge storage and saving	3.18	1.12	Medium
7	3	The university develops the workers' organizational skills to facilitate the knowledge organization process	3.15	1.15	Medium
Knowledge Organization and Storage Area as a Whole			**3.53**	**0.78**	High

Table (6) concerning the (knowledge organization and storage) area shows that this element came with a high degree as a whole. The area items indicate that item (6) stating, "The management uses the computer in organizing, storing and assorting the data and information", gained the highest rank with a high degree as well. This may be attributed to that the nature of the university works requires intensive use of the computer, as well as the services the computer provide, with all speed and accuracy in storing, retrieving and processing the data and information. In addition, the workers are very well acquainted to computer use. Meantime, the third ranked item, "The university develops the workers' organizational skills to facilitate the knowledge organization process", ranked last with medium degree. This might be attributed to the wide academic and administrative burdens in the university, in addition to the heavy workloads required from the faculty members, which lead to the lack of sufficient time for

working on the development of the organizational skills. Furthermore, there is a lack of suitable material and moral conditions that help the acquisition of the necessary experts for the administrative development. The result of this study is different from that of Al-Agha and Abu Al-Khair (2012), which came in a low degree. As for the result of the study of Rababah, Al-Shboul and Al Zaghoul (2013), it ranged between low and high; and the results of Al Othman study (2013) was with high degree.

Fourth Area: Suitable Environment for Knowledge Prosperity

Table – 7 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Second Area (Suitable Environment for Knowledge Prosperity), Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
1	3	The university management offers financial, technological and software provisions to enhance knowledge in the field of scientific research and inventions, through the recommendations of the workers	3.16	1.14	Medium
2	2	The workers possess skills that are directly related to the use of information, communication and innovations.	3.08	1.07	Medium
3	7	The university management is concerned with the technical and vocational education to prepare qualified and specialized cadres who respond to knowledge requirements	3.02	1.1	Medium
4	4	The university management produces, publishes, develops, implements and uses knowledge in creative and innovative methods, through the leaders' recommendations.	3.00	1.09	Medium
5	5	The university management develops the worker knowledge efficiency to face challenges imposed by the rapid growth in the means and methods of information acquisition.	2.96	1.07	Medium
6	1	The management provides the workers specialized knowledge and academic programs in an intensive manner, characterized by flexibility that meets the workers' needs	2.88	1.13	Medium
7	6	The university management focuses on a comprehensive development of the workers.	2.85	1.16	Medium
Suitable Environment for Knowledge Prosperity Area as a Whole			**2.99**	**0.89**	Medium

Table (7) concerning the (Suitable Environment for Knowledge Prosperity) area shows that this area came with a medium degree as a whole. This may be attributed to the low morale of the workers, due to the low capital expenditure on the required environment for knowledge prosperity. As shown in the above table, item (3) providing, "The university management offers financial, technological and software provisions to enhance knowledge in the field of scientific research and inventions, through the recommendations of the workers", ranked first with medium degree. This degree may be attributed to many reasons. For instance, the most important

functions of the university are scientific research, education and local community service. Additionally, if the financial provisions for research were not spent in the universities, the law of higher education forces the universities to return these funds to the scientific research fund within a limited time. As for item (6), "The university management focuses on a comprehensive development of the workers", ranked last with medium degree. This might be explained by the lack of diversity of knowledge with the workers, as most of them have specialization in a certain domain. Thus, he/she seeks development in this domain, which results in the lack of comprehensive development in all the areas in the university. However, these results are in agreement with that of Al Othman (2013), which came in high ratings; and is in agreement with the study of Hossain, Bischoff, and Willy, Roncace & Walsh (2015) which were between medium and high. Anyhow, it was not in agreement with the study of Al-Agha and Abu Al-Khair (2012), which came with low degrees, as well as study of Rababah, Al-Shboul and Al Zaghoul (2013), which results ranged between low and medium.

Results Concerning Question Two: *"What is the occupational empowerment degree in the Northern Jordan Province universities, as viewed by the faculty members in these universities?"*

To answer this question, the researchers calculated the means and standard deviations of the sample participants' evaluations (faculty members) on the occupational empowerment items as a whole. Table (8) illustrates this.

Table – 8 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Second Area (Occupational Empowerment), Arranged in a Descending Order

Rank	No.	Areas	No. of Items	M	SD	Degree
1	3	Goal Clarity	6	3.61	0.87	High
2	1	Power Authorization	7	3.53	0.89	High
3	2	Sharing in Decision-Taking	6	3.49	1.02	High
4	4	Training and Development	5	3.10	1.08	medium
Areas of the Occupational Empowerment as a Whole			24	3.45	0.85	High

Table (8) shows that the means ranged between (3.10-3.61), where the goal clarity ranked first with (3.61) mean and high degree, followed by the power authorization with (3.53) mean and high degree. The third rank was for sharing the decision taking, with (3.49) mean and high degree; and the fourth and last rank was for training and development with (3.10) mean and medium degree. Finally, the overall mean of the occupational empowerment areas was (3.45) with high degree.

This means that the occupational empowerment areas, as viewed by the faculty members of the Northern Jordan universities were high in the areas of (goal clarity, power authorization and sharing in decision taking), except for the training and development area, which came in medium

degree. This may be attributed to that, the concentrated powers in the hands of a certain category of the workers, who are capable and possess ability to authorize powers to the workers in an appropriate manner, as per the pertinent tasks and powers. As for the workers' sharing in the decision taking in the decisions that relate to their job areas, this will be positively reflected on the workers' performance. Furthermore, it would hasten the implementation of the tasks assigned to them effectively and efficiently, stemming from their willingness to create development and change for themselves and their organization. Such organization contributed to implant the values of belonging, motivation and eagerness to update and develop themselves, to become enabled workers, seeking for development, achievement and updating for themselves and upgrading for their organization.

In this concern, the researchers calculated the means and standard deviations of the sample participants' evaluation on the items of every area, individually, which were as follows:

First Area: Power Authorization

Table – 9 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Power Authorization Area, Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
First Area: Power Authorization					
1	5	Management trusts me and grants me responsibility	3.74	1.11	High
2	1	Management authorizes me sufficient powers to perform my occupational tasks	3.73	1.10	High
3	7	The university management follows-up my performance and provides advice and support, continuously, in the tasks assigned to me.	3.56	1.15	High
4	2	The management grants me sufficient flexibility to dispose in my task performance.	3.56	1.03	High
5	3	The university management provides me materials, equipment and information I need to complete my works.	3.46	1.03	High
6	6	The management provides me chances to take decisions independently.	3.40	1.19	Medium
7	4	The management changes the amount of powers vested in me from time to time, according to the work requirements.	3.34	1.06	Medium
Power Authorization Area as a Whole			**3.54**	**0.89**	High

Table (9) concerning power authorization area shows that this area gained a high degree. As for the other items of this area, item no. (5) Providing, "Management trusts me and grants me responsibility", came with highest rating and high degree. This may be attributed to the direct relations between the workers and supervisors (heads of departments), and the dependence of the bosses on their subordinates in performing works with high efficiency. Another reason may be that workers remain in their jobs for relatively long times, without "horizontal" movements. On

the other hand, item (4), providing, "The management changes the amount of powers vested in me from time to time, according to the work requirements", came with last evaluation and medium degree. This result could be ascribed to the "immobility" of certain systems and instructions applied in the universities, which do not allow change. However, the result of this study is in line with that of Al-Zaydanyeen (2006) which came in high degree; but not in agreement with those of Al-Tarawneh (2009), Al-Assaf (2006), Al-Qadi (2009) and Al-Matrouk (2010).

Second Area: Sharing in Decision Taking:

Table – 10 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Sharing in Decision Taking, Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
Second Area: Sharing in Decision Taking					
1	9	The university management allows me chances to obtain the information that enable me perform my duties appropriately.	3.60	1.10	High
2	11	My constructive proposal are taking into account by the university management.	3.54	1.17	High
3	10	The university management shares the workers in taking the decisions that concern their work.	3.49	1.16	High
4	13	The management provides me chance to share through views and suggestion that concern my work.	3.48	1.19	High
5	12	I receive encouragement from the management for developing creative and innovative ideas about new work methods.	3.43	1.25	Medium
6	8	The management listens carefully to the workers' views for making good use of their experiences.	3.42	1.13	medium
Sharing in Decision Taking Area as a Whole			**3.49**	**1.02**	**High**

Table (10) concerning decision taking sharing area shows that the area as a whole came with high degree. On the other hand, item (9) providing, "The university management allows me chances to obtain the information that enable me perform my duties appropriately", ranked first with high degree. This may be imputed to the mutual interests between the boss and the subordinates in carrying out the works properly, as well to the ease in the access to information. Meanwhile, item (8) providing, "The management listens carefully to the workers' views for making good use of their experiences", ranked last with medium degree, which may be ascribed to the lack of sufficient time to listen to the workers, discuss with them and take their views into account. However, this result disagreed with the studies of each of:Al-Tarawneh (2009, Al-Assaf (2006), Al-Qadi (2009).

Third Area: Goal Clarity

Table – 11 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items Goal Clarity, Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
Second Area: Goal Clarity					
1	15	I fully perceive the work I am expected to perform	3.97	0.93	High
2	19	I feel that I am an integrated part of the university	3.77	1.14	High
3	16	I feel close connection between my objectives and the general objectives of the work, represented in the objectives of the university.	3.66	1.05	High
4	14	My work objectives are clearly matching those of the university.	3.51	1.08	High
5	18	I am fully aware of the general plan of the university	3.46	1.14	High
6	17	The management defines the tasks and responsibilities of every management accurately and clearly.	3.45	1.15	High
Goal Clarity Area as a Whole			**3.63**	**0.87**	**High**

Table (11) concerning goal clarity area shows that the area as a whole came with (3.63) mean and high degree. As for the highest and lowest items, item (15) providing, "I fully perceive the work I am expected to perform", ranked first with high degree. This may be ascribed to the easy access of the job description, which includes the assignments and duties of every job designation. It may be further ascribed to the common prevalence of the "minor specialization" among the different jobs in the university. Still it might be due to large share of power authorization to the workers, because of the increasing trust of the workers in themselves and their works. Meanwhile, item (17) providing, "The management defines the tasks and responsibilities of every management accurately and clearly", ranked last with highdegree. This may be ascribed to workers' sharing in decision making, which concerns the works and responsibilities, sometimes directly, and authorizes them tasks and powers that match their work area most often. .However, this result is not in line with the studies of each of:Al-Tarawneh (2009), Al-Assaf (2006), and Al-Qadi (2009).

Fourth Area: Training and Development

Table- 12 Means and Standard Deviations of the Sample Participants' (Faculty Members) Evaluations on the Items of the Training and Development Arranged in a Descending Order

Rank	No.	Items	M	SD	Degree
Second Area: Training and Development					
1	24	I think that the training programs adopted by the management and delivered to me enable me perform my duties with high efficiency and effectiveness.	3.17	1.20	Medium

Rank	No.	Items	M	SD	Degree
2	21	The management contributes to guiding me to the suitable training programs for me, and it supports my participation in such programs.	3.14	1.24	Medium
3	20	The management prepares an annual plan for the training needs of the workers.	3.14	1.23	Medium
4	23	Training and development programs are not limited to a certain group or category; rather they cover all the workers, according to their specializations.	3.05	1.26	Medium
5	22	The management seeks to provide purposeful chances to train and develop the employees' skills and experiences.	30.2	1.20	Medium
Training and Development Area as a Whole			**3.10**	**1.08**	**Medium**

Table (12) concerning the training and development area had the least evaluation with medium degree. This may ascribed to the ignorance of this important aspect for training and developing the workers' performance; and to the poor material and moral requirements for this area. However, item (24) providing, "I think that the training programs adopted by the management and delivered to me enable me perform my duties with high efficiency and effectiveness', ranked first with a medium degree. This is ascribed to the rarity of these programs and the extreme "thirst" to these programs by the recipients. On the other hand, item (22) providing, "The management seeks to provide purposeful chances to train and develop the employees' skills and experiences," ranked last with a medium degree; a fact that may be ascribed to the rarity of these training programs. These results are in agreement of those of the studies of each ofAl-Tarawneh (2007), Al-Assaf (2006), Al-Qadi (2009).

Results of Question Three: *"Is there a statistically significant correlational relation at (α≥.05) level between the evaluations of the sample participants (faculty members) on the items of knowledge management, as a whole, and each of its areas on one hand, and the occupational empowerment, as a whole, on the other?"*

To answer this question, the researchers obtained Pearson Correlational Coefficient between the Areas of knowledge management and Areas of occupational empowerment, among the faculty members in the Jordanian universities in the Northern Province, as illustrated in Table 13.

Table – 13 Pearson Correlation Coefficient between Knowledge Management and Occupational Empowerment, among the Faculty Members in the Jordanian Universities in the Northern Province

Variable		Power Authorization	Sharing in Decision Taking	Goal Clarity	Training and Development	Total
Knowledge Generation	**Correlation Coefficient**	****0.50**	****0.58**	****0.57**	****0.61**	****0.63**
	Significance	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Variable		Power Authorization	Sharing in Decision Taking	Goal Clarity	Training and Development	Total
	Number	343	343	343	343	343
Knowledge Employment	Correlation Coefficient	**0.51	**0.55	**0.55	**0.61	**0.63
	Significance	0.00	0.00	0.00	0.00	0.00
	Number	343	343	343	343	343
Knowledge Organization and Storage	Correlation Coefficient	**0.54	**0.55	**0.60	**0.54	**0.63
	Significance	0.00	0.00	0.00	0.00	0.00
	Number	343	343	343	343	343
Suitable Environment for Knowledge Prosperity	Correlation Coefficient	**0.56	**0.59	**0.60	**0.68	**.68
	Significance	0.00	0.00	0.00	0.00	0.00
	Number	343	343	343	343	343
Total	Correlation Coefficient	**0/58	**0.63	**0.63	**0.68	**0.71
	Significance	0.00	0.00	0.00	0.00	0.00
	Number	343	343	343	343	343

Table (13) indicates that all the correlation coefficients were positive and statistically significant at ($\alpha \geq 0.01$) level, between the areas of knowledge management and areas of occupational empowerment. Meaning that the more the practice degree of knowledge management, the more the practice degree of the occupational empowerment. This may be attributed to that knowledge management, with all its requirements, is in need for a parallel administrative empowerment to it, which enables workers use this information the way it would be.

This result is in agreement with the study results of Al-Assaf (2006), and each of Al-Ma'ani and Akhoo Rshaideh (2009), Welshah (2012), Radhi (2010), Al-Telbani, Budair & Al-Raqb (2015) and Hossain, Bischoff, Willy, Roncace & Walsh (2015).

Recommendations

- Work in the direction of providing abilities and facilities that help in creating a suitable environment for knowledge and occupational empowerment, in order to increase the achievement motives with the university workers.
- Provide suitable environment for brainstorming in the university, and adopting constructive ideas by the workers, to invest such thoughts optimally.

- Hold training courses and programs in the universities to enhance concepts of knowledge management and occupational empowerment with these universities; as well as enhance the extent of their reflection on the quality of education outcomes.
- Establish research units in every branch of the university, so that they will follow knowledge management to encourage the workers exchange and acquire knowledge.
- Create awareness of the faculty members about the importance of knowledge development, generation and employment, as well as elucidating its relationship to their occupational empowerment, each according to his/her specialization and work area. This awareness could be made through introductory booklets about whatever relates to knowledge management and reflections of empowerment, positively or negatively, on the individual and the university.
- Activate a democratic style (decentralization) management in the university to make relations founded on respecting the other, accepting ideas and constructive critics, which will lead to increasing the level of occupational empowerment with the university workers.
- Conduct more analytic studies similar to this current study, to uncover the requirements of knowledge management in universities, institutes and other institutions.

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FACTORS INFLUENCING STUDENTS' MATHEMATICAL ACHIEVEMENTS

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Abstract

This study aims at ascertaining the factors influencing students' mathematical achievement in the Department of Mathematics at the Hashemite University in Jordan from their viewpoints. A questionnaire that comprised 44 items was classified into seven domains and it was built and applied over 200 students (78 males and 122 females) representing (50%) of the study population. The results revealed that those factors have influenced students' mathematical achievement such as students' mathematical literacy level, beliefs about mathematics and others. The results also pointed out that there weren't any statistically significant differences pertained to students' congruence degree, attributed to gender variable. Additionally, the study propose some beneficial recommendations to deal with those factors; most importantly, to reinforce students' understanding of mathematics historical context through mainstreaming the history of mathematics in the plan of the Department of Mathematics. Finally the study suggests some hints about future research in this field.

Keywords: influencing factors – mathematical achievement - students of mathematics at the Hashemite University

Introduction

There has been a debate in the educational arena about the importance of taking into account students' mathematical achievement in order to be able to succeed in their life. The interlocutors confirm the importance of instruction design focusing on building individual's capacities to be able to understand mathematics and its applications (*Saritas and Akdemir, 2009*). Mathematical

achievement gained considerable interest of educators and parents due to the significant relationship between students' mathematical achievement and the ability to think and solve problems (*Rasmussen and Marrongelle, 2006*).

Literature indicates that students' mathematical performance in the public education stages is below the expected level (*Mbugua, Kibet and Muthaaand Nkonke 2012; Libienskiand Gutierrez, 2008*). Literature also proves that knowing factors influencing student's mathematical achievement is an integral part in taking suitable decisions concerning instruction design. Some studies and researches have specified factors influencing student's mathematical performance such as a study conducted by(*Mbuguaand et al, 2012*), which aimed at finding out Factors that contributed to students' poor mathematical achievement as well as another study that tried to establish reliable strategies to enhance secondary stage students' performance in Baringo County in Kenya. Their study specified a number of influencing factors including the following: (social, cultural, personal; poor competencies of teachers; inappropriate instruction methods and learning materials; students' lack of motivation; student's and teachers' weak attitudes as well as bad teaching practices.

In addition, a study carried out by (*Saritas and Akdemir 2009*) which addressed students' viewpoints in mathematics department of a public university situated in Turkey, revealed that factors influencing students' mathematical achievement were demographical, instructional and individual. Demographical were represented in (gender, parents' education level and socioeconomic conditions, whereas instructional factors comprised the following: curriculum, teaching strategies, teachers' mathematical competencies, university environment, supporting facilities. On the other hand, individual factors encompassed the following factors: self-aptitude towards learning, mathematical ability and motivation. The study concluded that the most three influential factors were: teaching strategies, lecturer's mathematical teaching competencies and their motivation which had to be put into consideration in the instructional design. The next influential factor was gender whereas parents' education level and socioeconomic conditions didn't have considerable effect on students' mathematical performance. Another study conducted by (*Alhello and Sisalem*, 2003) asserted that low household income and unsuitable home conditions were major reasons for poor mathematical achievement as expressed by students in the Islamic University – Gaza. The research has also found out that perceptions and beliefs about the nature of mathematics and its learning influenced mathematical achievement and they defined individual's way of selecting cognitive strategies used in learning (*Lazio and Wan 2004*).

Furthermore, the individual's mathematical perceptions and beliefs formed echelon adjustment and control for the mathematical cognitive construct (*Pehkonen and Torner, 1996*); therefore, in order to enhance teaching-learning process, it was important to have more information about that echelon and its function to be able to understand mathematics learning limitations (*Pehkonen, 1996*). The standards and criteria set forth by National Council of Teaching of Mathematics (*NCTM, 1989*) emphasized that students' beliefs and perceptions had massive strength on student's self-evaluation of their learning abilities, their well and motive to interact and engage in mathematical tasks. Those indicators also showed that there was circular relationship between beliefs and learning and students' learning experiences interpreted their perceptions concerning mathematical achievement and that such beliefs influenced their ways in acquiring new mathematical experiences. Results of some researches and studies showed that there was positive

significant relationship statistically between students' mathematical knowledge and their beliefs about mathematics (*Quillen, 2004*).

By the same token, the results of a study carried out by (*Kathina, 2000*) which examined the possible relationship between student's beliefs and their mathematical, emphasized that the relationship between students' mathematical beliefs and practices along with that echelon of beliefs have worked as a vital means to predict their mathematical behavior when dealing with mathematical problems. Mathematical contributed to developing awareness and understanding of what had been learnt, enhancing self-awareness and strengthening the ability to adjust and control human behavior as well as providing opportunities for scientific thinking (Ibrahim, *2002*). Poor mathematical level might be one of the most important factors that occurred due to student's negative attitudes towards mathematics, their inability to conceive the effect of mathematics in life, their poor achievement, their various thinking abilities weakness and creating such might solve that problem (*Elssr, 2005*). Additionally, understanding the nature, history and development of mathematics were among the most crucial factors that influenced mathematical achievement as indicated by a study conducted by (*Al-Kharashi, 1994*) which demonstrated that there was a positive relationship between acquiring mathematical competencies and understanding the nature and structure of mathematics.

The findings of some studies and researches; for example, (*Lee, Burkam, Chow-Hoy, Smerdon and Goverdt, 1998*) have stressed that the structure of mathematics curricula had considerable influence on students' mathematical achievement. In like manner, the findings of a study conducted by (*Norhatta, Tengku and Mohd, 2011*) showed that there was a relationship between mathematical achievement, patience attitudes, trust and desire towards solving mathematical problems.

In light of the aforementioned, the researcher finds out that it is important to address the influencing factors that affect mathematical achievement, especially due to Arab research scarcity in this domain, according to his knowledge. he also emphasizes the importance of specifying such influences from mathematics students' viewpoints since they have crucial effect on developing mathematics teaching through providing different supportive facilities to enhance students' mathematical achievement, dissemination of awareness among teaching-learning process stakeholders and concerned individuals about the importance of these factors either on students' level themselves, teachers of mathematics and concerned departments about mathematics teaching development in the university.

Problems and Questions

Through examining a number of researches and studies, and through practicing scientific research about mathematics teaching and the preparations of mathematics teacher, it was found that there were many factors which influenced student's mathematical achievement and knowing such factors constituted an important part to take the most suitable decisions concerning instructional design (*Saritas and Akdemir, 2009*). By investigating and inducting those factors, it was ascertained that most researches which dealt with factors influencing students' mathematical achievement focused on a number of domains including cultural, social, demographical, instructional and individual factors; however, the researcher claimed that there were other

influencing factors on students' mathematical achievement, mainly their beliefs and perceptions about mathematics nature and learning, levels of mathematical literacy, understanding of mathematics nature and knowing the history and development of mathematics.

Therefore, the research study centered upon identifying factors that affected student's mathematical achievement from their viewpoints in the Hashemite University in order to know the significant differences between the two means of congruence degree on the factor affecting their mathematical achievement attributed to gender variable through answering the following questions

- What are the factors which influence students' mathematical achievement in the Department of Mathematics in the Hashemite University in Jordan from their points of view?
- Does the congruence degree concerning factor affect students' mathematical achievement according to their gender?

Methodology and Procedures

A descriptive, survey methodology was utilized since it accorded with the aim of the study. The target population for this study consisted of 400 students who were attending the second semester of the academic year 2015/2016 at the College of Science/Department of Mathematics in the Hashemite University. The study sample comprised (200) students (78 and 122 male and female students respectively) representing (50%) of the population of the study. All students who registered "Abstract Algebra (2)", "Mathematical Statistics" and "Complex Analysis" courses were chosen in the study sample. These courses were usually studied after students' first year so that they would have the chance to familiarize with the characteristics of the university environment and the faculty members' mathematical competency.

Instrumentation

A questionnaire was built in order to define factors influencing students' mathematical achievement from their viewpoints at the Department of Mathematics. In the current study, those factors were defined as characteristics and impulses that influenced students' mathematical achievement positively or negatively and indicated their answers in the questionnaire items which scored congruent mean that exceeded 3.5 representing 70% on items related to those factors. Accordingly, researches and studies which dealt with those factors were examined such as (*Mbuguaand et al, 2012; Saritas, and Akdemir, 2009; Lazim, Abu Osman, and Wan, 2004; Katrina, 2000; Quillen, 2004; Ibraheem, 2002. Asser, 2005; Al-Kharashi, 1994*)

Through conducting in-depth analysis of those factors, the questionnaire was divided into the following seven domains. Six items were allocated to the first domain "Perceptions and understanding of the history and development of mathematics". Five items were allocated to the second domain. Such beliefs about mathematics which were self perceptions about mathematics teaching and learning are believed explicitly and implicitly by students. Five items were dedicated to the third domain "Student's mathematical literacy level" which constituted a group of mathematical concepts, skills and their applications in real life situations, attitudes,

educational values related to mathematics nature and teaching in which students can participate in and preserve their cognition and emotions for longer time, which help them how to teach and learn mathematics. Seven items were allocated to fourth domain "Students Developmental characteristics". They were a group of characteristics that mathematics students had in the Hashemite University and they were expected to have impact on their mathematical achievement. Seven items were allocated to fifth domain "University's environment characteristics" which consisted of available facilities to facilitate students' learning in terms of lecturing halls, technological means, students' services, labs, libraries and aesthetical environment. Seven items were allocated to sixth domain "Academic and educational competencies of faculty members of mathematics" that encompassed their teaching skills and strategies, personal characteristics and professional development. Seven items were allocated to seventh domain "Family's characteristics" that pertained to relationship among students, fathers and mothers, parents' education level, the availability of technological devices at home and the general communal environment.

5-scale Likert (very high, high, moderate, low, very low) was used to measure congruence or incongruence degree that corresponds with the following numbers 1,2,3,4, and 5 respectively. The questionnaire was arbitrated by a number of specialists in the field of mathematics curricula and methods of teaching, thus some amendments were made. The questionnaire was applied on an exploratory sample which consisted of 30 female and male students other than those who were included in the original sample. Pearson's correlation coefficient was used to calculate the correlation coefficient of each item according to its domain to know degree of the internal consistency coefficient of the questionnaire and it was found that all values of correlation coefficient were statistically significant indicating the correlation strength of each item with its domain. Moreover, the reliability correlation coefficients ranged between (0.74 – 0.85) indicating that they were all acceptable and referred to the reliability of the questionnaire's items.

Results and Discussion

To answer first question: ***What are the factors which influence students' mathematical achievement at the Department of Mathematics in the Hashemite University in Jordan from their viewpoints***? Arithmetical means and standard deviations were used and results are shown in table (1) below.

Table 1- Arithmetical means and standard deviations of the congruence degree concerning factors that influence students' mathematical achievement

Domain	Item	Mean	SD	% of Mean	Item	Mean	SD	% of mean
Knowledge about mathematics nature and development	**1**	4.24	.84	0.85	**2**	3.96	.82	0.79
	3	2.88	1.14	0.58	**4**	3.18	1.0	0.64
	5	3.78	.97	0.76	**6**	2.88	1.1	0.58
					Total	**3.49**	**.60**	**0.70**
beliefs and perceptions about	**7**	4.02	.87	0.80	**8**	4.14	.81	0.83

Domain	Item	Mean	SD	% of Mean	Item	Mean	SD	% of mean
mathematics	**9**	3.88	.86	0.78	**10**	3.76	.97	0.75
	11	4.28	.73	0.86	**Total**	**4.02**	**.52**	**0.80**
Level of mathematical literacy	**12**	4.47	.66	0.89	**13**	4.33	.75	0.87
	14	3.94	.84	0.79	**15**	3.85	.89	0.77
	16	4.16	.90	0.83	**Total**	**4.15**	**.52**	**0.83**
Students' developmental characteristics	**17**	4.03	.77	0.81	**18**	4.18	.86	0.84
	19	4.06	.92	0.81	**20**	3.81	.97	0.76
	21	3.90	1.07	0.78	**22**	3.83	.97	0.77
	23	4.01	.77	0.80	**Total**	**3.98**	**.59**	**0.80**
University's environment characteristics	**24**	3.93	.96	0.79	**25**	4.09	1.1	0.82
	26	3.27	1.15	0.65	**27**	3.10	1.3	0.62
	28	3.30	1.2	0.66	**29**	3.50	1.1	0.70
	30	3.96	1.1	0.79	**Total**	**3.59**	**.67**	**0.72**
Mathematics faculty members' academic and educational competencies	**31**	3.83	1.1	0.77	**32**	3.16	1.13	0.63
	33	3.62	1.1	0.72	**34**	3.90	.98	0.78
	35	3.96	.98	0.79	**36**	3.77	1.1	0.75
	37	3.03	1.20	0.61	**Total**	**3.61**	**.78**	**0.72**
Family's characteristics	**38**	3.55	.98	0.71	**39**	3.97	.99	0.79
	40	3.86	1.1	0.77	**41**	3.84	1.1	0.77
	42	4.05	.85	0.81	**43**	3.64	1.1	0.73
	44	3.55	.98	0.71	**Total**	**3.78**	**.69**	**0.76**

Factors which obtained congruence degree from respondents and were more or equivalent to (3.5) representing 70% were real influencing factors from the respondents' viewpoint, whereas those which scored congruence degree less than 3 representing 60% were not real influencing factors that affected students' mathematical achievement according to the following evaluation measurement: ([less than 50%: very low]; [50% – 59.9%: low], [60% – 69.9% moderate], [70% – 79.9%: high], [80% and higher: very high]) (*Barakat and Herzallah, 2010*).

Table (1) indicates students' estimations means of congruence degree concerning factors domains as real factors which affect their mathematical achievement come sequentially as follows: Level of mathematical literacy (4.15–83%); beliefs and perceptions about mathematics (4.02–80%); Students' developmental characteristics (3.98–80%); family's characteristics (3.78–76%); Academic and educational competencies (3.61–72%); university's environment characteristics (3.59–72%) and Knowledge about mathematics nature and development comes last which scored (3.49–70%).

These results accorded with some researches' results. For instance, concerning mathematical level, researches and studies indicated that it had crucial role in developing awareness and understanding of what was learned from mathematics while the factor which addressed beliefs

about mathematics researches' results indicated that such beliefs defined the way of learners' choice of their cognitive strategies used in their learning (*Lazim, Abu Osman and Wan, 2004*). The result of the current study is consistent with the result of the study carried out by (*Quillen, 2004*) which emphasized the existence of a positive and significant relationship between students' mathematical knowledge and their beliefs about mathematics. Other factors influencing student's mathematical achievement are related to faculty member's competency, university's environment characteristics, logistical facilities and student's characteristics; the results were addressed by the study conducted by (*Saritas and Akdemir, 2009*) and these results were in consistent with the results of this study.

The following discusses the results of each factor according to its domain which affects students' mathematical achievement from their viewpoints.

First domain –Knowledge about mathematics: nature and development

As shown in table (1) the items that obtained congruence degree more than (70%) were sorted in descending order as follows: "Understanding the nature of mathematic helps in enhancing students' mathematical achievement" (4.24–85%)", "Recognizing the characteristics of mathematics is important to understand mathematical subject" (3.96–79%) and "Knowing the difference between mathematics as a science and as study course helps in understanding the nature of mathematics" (3.78 – 76%) indicating that their recognition of the importance of mathematics nature as a crucial factor which influences their mathematical achievement is accorded with (*Elssr, 2006*) who stressed that teachers' mathematical awareness was very important when carrying out their instructional design. Those results are also concorded with some studies which showed positive linkage between acquiring mathematical competencies and understanding the structure and nature of mathematics (*Mbugua, Kibet, Muthaa and Nkonke, 2012*).

Whereas items which obtained congruence less than 60% were ranked in descending order as follows: "Tracking mathematics development stages promotes learning mathematics" (2.88 – 58%), "Knowing scientists' achievements in the development of mathematics is helpful in learning mathematics" (2.88–58%), indicating that mathematics students didn't consider that studying the history and development of mathematics was not important, consequently that explained their disinclination and weak desire to know more about the subject. That might be attributed to lack of special course addressing the history and development of mathematics; therefore, the researcher considered that it was very important to learn about that subject so that they could understand the historical context of mathematics development.

Second domain –beliefs and perceptions about mathematics

The results of table (1) showed that the following items which obtained congruence degree less than 3.2 at 60% were sorted in descending order: "Mathematics enjoys high degree of accuracy and logic affects mathematical achievement" (4.28–86%), "Recognizing the role of mathematics in life and science is important to understand mathematics: (4.14 – 83%), "Fixedness of mathematical beliefs achieves more understanding of this discipline" (4.02–80%), "Beliefs about mathematics as method of thinking through using symbols influences mathematical achievement" (3.88–78%), "Mathematics is a research and representation tool of natural

phenomena that helps in understanding mathematics and enhance mathematical achievement" (3.76–75%) indicating that students recognized the importance of having correct beliefs about mathematics to increase their achievement as proved by the results of the research conducted by (*Quillen, 2004*) and his results showed the existence of a positive and significant relationship between students' mathematical achievement and teacher concerning beliefs about mathematics. These results also accorded with the study conducted by (*Hailikariand et al, 2008*) beliefs about self and academic competency closely linked with mathematical achievement as well as the results of the study carried out by (*Kathina, 2000*) which demonstrated the relationship between students' mathematical beliefs and practices and that echelon of beliefs revealed the advantage of the methodological nature of mathematics.

Third domain – Level of mathematical literacy

The results of table (1) showed that the following items which obtained congruence degree higher than 70% were sorted in descending order: "Possession of strong mathematical background in mathematical knowledge fundamentals affects students' achievement" (4.47 – 89%), "Development of the ability to use this mathematical background in solving scientific and life problems is useful in increasing mathematical achievement level (4.33–87%), "Possession of the ability to use mathematics to solve problems and taking suitable daily decisions affects mathematical achievement (4.16–83%) and "Knowing application field of mathematics in real life situations contribute in learning mathematics (3.94 – 79%).

These estimations undoubtedly showed that mathematics students believed that mathematical literacy level affected their mathematical achievement and accorded with the results of the study conducted by (*Hailikari, and et al., 2008*) which indicated that the dimension of the previous knowledge was the strongest predictor of student's achievement. These results also accorded with the study carried out by (*Lee, and et al., 1998*) which showed that achieving higher level of achievement in mathematics courses closely linked with student's mathematical achievement and that the structure of mathematics curriculum structure in the university had considerable effect on their mathematical achievement as well as mathematics curricula structure and type of courses and their preparation that were studied by students had direct and indirect effect on their achievement.

Fourth domain Students' developmental characteristics

The results of table (1) showed that the following items which obtained congruence degree more than 3.5 representing 70% were categorized in descending order as follows: "Positive attitudes towards mathematics are important in learning mathematics" (4.18–84%), "Motivation towards learning mathematics contributes in the realization of mathematics learning" (4.06 – 81%), "Observance of mathematics students' developmental characteristics is important to enhance students' mathematical achievement" (4.03 – 81%), "Student's health affecting their mathematical achievement" (4.01 – 80%), " cultural backgrounds of students an influential factor on the achievement in mathematics" (3.9 – 78%), "Treatment of mathematical learning difficulties in accordance with students' developmental characteristics is important to increase their mathematical achievement" (3.83 – 77%) and "Previous learning achievement is important to increase students' mathematical achievement" (3.81 – 76%). These results accorded with the

results of the study conducted by (*Saritas and Akdemir, 2009*) which confirmed the role of individual factors and affected mathematical achievement and represented in attitudes towards mathematics learning and mathematical ability and motivation to learn mathematics.

Fifth domain – University's environment characteristics

The results of table (1) showed that the following items which obtained congruence degree more than 70% were categorized in descending order as follows: "Number of students in lecture halls" (4.09 – 82%), "The availability of study halls" (3.96 – 79%), "Aesthetical environment of the university [vegetation and green areas]" (3.93 – 79%), and "The availability of scientific and computer labs" (3.50 -70%). The results designate that mathematics students are interested in having comfortable learning environment rather than employing technological means in teaching. These results accorded with the results of the study conducted by (*Saritas and Akdemir, 2009*) and that of the university's environment and logistical facilities were influencing factors on students' mathematical achievement.

Sixth domain – Mathematics faculty members' academic and educational competencies

The results of table (1) showed that the following items which obtained congruence degree more than 70% were classified descendingly as follows: "Personal traits of the mathematics lecturer" (3.96 – 79%), Lecturers' ability in introducing the mathematical subject that they teach" (3.90 – 78%), "The use of various teaching strategies" (3.83 – 77%), "Mathematics lecturers' professional and academic growth" (3.77 – 75%) and "The nature of the relationship between the lecturer and the student" (3.62 – 72%). These results accorded with the results of some studies such the study conducted by (*Mbugua and et al., 2012*) who emphasized that unqualified and weak teaching staff, unsuitable instruction and learning material and bad teaching practices constituted major reasons for poor students' mathematical achievement. They also accorded with the results of the study conducted by (*Saritas and Akdemir, 2009*) which stressed that mathematics teaching strategies and methods as well as mathematics teacher's mathematical competency played crucial role in student's mathematical achievement.

Seventh domain – Family's characteristics

The results of table (1) showed that the following items which obtained congruence degree more than 70% were classified in descending order as follows: "The nature of the relationship between parents and their children" (4.05 – 81%), " The nature of the relationship between mother and father "(3.97- 79%) "The educational level of the parents" (3.84 – 77%), "The availability of suitable dwelling" (3.84 – 77%), "The social environment surrounding the dwelling" (3.64 – 73%), "The economical situation of the family" (3.55 – 71%), and the availability of computers and internet access (3.55 – 71%). These results confirm mathematics student's satisfaction that family's factors are very important, especially the nature of the relationship between them and their parents, their parent's educational levels and the availability of an appropriate accommodation. These results accorded with the study conducted by (*Saritas and Akdemir, 2009*) who emphasized such factors; for instance parents' educational level and their economic and social status had considerable effect on student's mathematical achievement.

To answer second question: ***Does the congruence degree concerning factor affect students' mathematical achievement according to their gender***? One-way analysis of variance (ANOVA) was used and table (2) table demonstrates the results.

Table (2)- The results of ANOVA analysis, Ƒ-value of the significant difference between the two means of congruence degree over the factors affecting students' mathematical achievement according to gender

Source of Variance	Domain	Sum of squares (SS)	df	Mean squares (MS)	Ƒ value	Significant Level (α)
Gender	Knowledge about mathematics nature and development	.01	1	.01	.03	.87
	beliefs and perceptions about mathematics	.03	1	.03	.11	.74
	Level of mathematical literacy	.35	1	.35	1.29	.26
	Students' developmental characteristics	.68	1	.68	1.99	.16
	University's environment characteristics	.28	1	.28	.61	.44
	Mathematics faculty members' academic and educational competencies	2.11	1	2.11	3.43	.07
	Family's characteristics	1.49	1	1.49	3.10	.08

Table (2) shows that Ƒ-values are not statistically significant at (α=0.05) indicating that regardless of students' gender they have identical viewpoint regarding these factors. These results are attributed real factors which influence their mathematical achievement; therefore, they agreed upon these factors. All male and female students have enough awareness about the importance of these factors in the achievement, thus there aren't any real significant difference statistically between students' congruence degree regarding these factors and that all students experience the same university environment and facilities, they also interact with the same faculty members and study the same courses, their families conditions may not differ considerably since they relatively live in similar environments and they belong to the same age category; consequently, they share common characteristics.

These results accorded with the results of the study conducted by (*Talafha, 2006*) which indicated that there weren't significant differences between male and female students' estimations concerning the most important personal, educational and social factors which affected their mathematical achievement in the university. The results of the study carried out by (*Mansour, 2010*) accorded with the current study since these results indicated that all students regardless of their gender agreed on one viewpoint about influencing factors in their achievement.

Recommendations

1- Reinforce students' understanding of mathematics historical context through mainstreaming the history of mathematics in the plan of the Department of Mathematics.

2- Emphasize the importance of understanding of structural nature of mathematical courses and their teaching methods as well as supporting the vision of mathematics courses integrity through demonstrating these linkages that link among these courses.

3- Ensure that mathematics students possess acceptable level of mathematics due to its importance in enhancing their achievement.

4- Provide science and computer labs as well as sufficient technological multimedia to students so that they can learn mathematics effectively.

5- Make sure that faculty members' educational and academic competencies are considerably high through evaluating them continuously, providing them with more qualification and training opportunities to ensure that they carry out their task and responsibilities effectively and asking them to diversify their methods of teaching and the use of more interactive methods.

6- Consolidate the positive relationship between the mathematics faculty members and their students so as to achieve their effective learning through having personal, humanistic and educational characteristics.

7- Provide enough study halls to avoid student's over crowdedness in mathematics sections, for its negative effects their achievement.

8- Provide family and social counseling services for students who suffer from hard social and family conditions, supporting them financially through financial exemptions to reduce family pressure upon them, holding meetings with parents to address suitable perception to enhance their relationships with their children as well as providing suitable conditions to them for better mathematical achievement.

Future research

The researcher suggests extensively studying the following topics:

1- The effect of intervention in providing these factors on enhancing mathematical achievement such as studying the impact of enhancing student's mathematical on their achievement, or studying the relationship between student's mathematical literacy level or beliefs and their mathematical achievement.

2- The relationship between mathematics students' characteristics and their mathematical achievement.

3- The relationship between the personal traits of mathematics faculty member in the university and their students' mathematical achievement.

4- The impact of providing academic, administrative, educational and technical support on students' mathematical achievement.

5- The relationship between students' family conditions and their mathematical achievement.

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