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EDITOR'S NOTE

Welcome to this second issue of JIRSEA for 2010.

In this issue you will find an eclectic collection of topics contributed by authors from Malaysia, Australia, the USA and Jordan. All of course is in support of our endeavour to improve Institutional Research (IR). Such coverage of topics obviously points to the wide spectrum of IR issues that had not as yet been uncovered but are being researched on around the world.

With rapid development in technology, pedagogy and curriculum, it is almost certain that more topics related to IR would be brought forth. The rather revolutionary happenings in higher education management in Indonesia as reported by Amin Zuhairi *et al* in the previous issue of JIRSEA, promises even a richer discussion in the future.

Paramita and Sharma from Australia began this volume by examining the correlates of student performance and found that basic quality delivered by academics still figure significantly. These are naturally determined by the university's policies and plans.

The theme is further continued by Waddah *et al* from Malaysia who explored the effects of two learning modes on the learning of English by foreign students. In one, the modality mode, narration and pictures were used, while in the other, the redundancy mode, subjects are also shown the text they are studying. The additional dimension proved that the learning was much more effective. This has a number of implications and proved that learning is assisted with some amount of redundancy.

Majid Al-Khataybeh and Ayat Naser Al-Dararjeh from Jordan also look at the effective teaching of English as a Foreign Language but from its planning, specifically the conscientious determination of its behavioral objectives. They found that the teachers' qualifications do not make any significant difference though their experiences do in formulating successfully implemented behavioral objectives.

Moving away from the English language, Jawarneh presents the first of two papers in this issue about learning styles. In this paper he describes the learning styles of students of social studies at a university in Jordan. Irrespective of genders the author found that the preferred characteristic by students in this case is being "assimilators". Studies such as this would help in strategizing effective teaching.

The second is a joint paper by authors in the USA and Jordan looking at learning styles in a newly introduced subject of Environmental Engineering and Management. This subject is not only new in Jordan but also in the general geographical area. This study therefore would be pivotal in ensuring that not only the subject but the significance of managing the environment in the Middle East gain wide acceptance.

Shah and Ione from Australia critically looked into the growth and operation of private higher education in Australia and found that higher education in general is flexible and adaptable, factors that had helped it to survive the recent global recession. However, some tightening of governance, rules and regulations appear to still be needed and rationalization of these *vis a vis* Federal and State governments are still on going. A number of recommendations were put forward by the authors.

Due to the many articles that were received, not all are able to be accommodated in this issue. They will be included in the first issue of JIRSEA Volume 9 scheduled for publication in May 2011.

In the meantime, please keep articles coming in for JIRSEA. Thank you again to those who have contributed.

Happy reading,

Nirwan Idrus

Editor

Students' Academic Performance and Learning Perceptions in an Australian University of Technology

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Abstract

Students' academic performance within the Australian higher education sector is a growing area of institutional research in the country. Its profile has been enhanced with the advent of the learning and teaching performance fund that inter alia includes academic performance as a key performance indicator for the allocation of Commonwealth monies under the scheme to the universities. The present study examines some of the important correlates of the academic performance of students within an Australian technological university. It also examines some of the planning and policy implications of the findings of the research. A key finding of the study is that good teaching, provision of helpful feedback to students, actively engaging students in the learning process and the like all contribute to enhance student performance. Clearly the academic staff play a critical role in these areas and perhaps the institutional researchers can assist them to keep turning "water into wine" by investigating how related value added learning and teaching activities can best be delivered in the classroom or through the virtual medium.

Introduction

There is growing interest in Australia in the conduct of institutional research on students' academic performance within the higher education sector. Part of the impetus for such studies is driven by external environmental forces. The Federal Government introduced the Learning and Teaching Performance Fund in 2006 to reward universities for their measured excellence in learning and teaching for undergraduates (Department of Education, Employment and Workplace Relations, 2009). An important key performance indicator used in the allocation of this performance fund is the student progress rate that constitutes a measure of student academic performance and is broadly defined as the ratio of student load with pass or better results and total student load. Clearly it is in the interest of universities to ensure that they maximise their share of the over $70 million allocated each year under this scheme through, among other things, the quantitative improvements in their student performance/progress measure.

There are internal institutional forces driving the greater interest in student performance within Australian universities. Some institutions such as Swinburne and Wollongong had implemented performance based funding within their institution during the mid to late 1990s; needless to say that they performed well under the Learning and Teaching Performance Funding model. So the external pressures to improve certain key performance indicators such as student performance is transferred along the hierarchical chain down to Colleges, Divisions, Faculties, Schools and the academic departments.

The "hip pocket nerve" is indeed a major source of interest in improving a university's students' performance. Clearly if a student fails in their academic examinations, a priori, they are more likely to drop out from their study program, this in turn would decrease the future institutional student load and hence generating downward pressures on the university's financial resources. Alternatively the institution will need to recruit more commencing students in the following year and this may well place burdens on the marketing costs for the higher education institution concerned.

While often the University management has to focus on efficiency and related financial issues, as portrayed above, there is also a human side or 'effectiveness' and related concerns that focus higher education's attention on student success and retention. As previously stated, a student who is not successful in academic assessments is more likely to withdraw from the program or be excluded according to academic procedures. Thus from the students' perspective there is a relatively high cost of failure. For instance, students who complete their programs are more likely to obtain more higher paying jobs and hence stand to lose out economically if they do not complete their programs.

The present study, accordingly, focuses on factors that impact on students' academic performance by exploring the following broad issues:

- Factors that influence the student performance outcomes, particularly in relation to demographic variables such as age, country of permanent residence, hours of study and attendance load.
- As per above but in relation to outcomes of the course experience survey including perceptions of good teaching and overall satisfaction with teaching and learning.

Literature Review

As previously stated the national learning and teaching performance fund has heightened interest within Australia on the undertaking of institutional research in the area of student performance. This national funds allocation mechanism uses the Student Progress Rate as one of the seven key performance indicators. Further one could argue that there would be a significant correlation between how well students perform in their university

assessment and another metric that has been used in the learning and teaching funding model, namely, the student retention rate.

But the "hip pocket nerve" is not the only driver of institutional research into student performance since most institutions and indeed Governments are genuinely interested in enhancing higher education student performance. So it is not surprising that a number of studies have been undertaken on student performance even prior to the advent of learning and teaching performance funding. Dobson and Sharma (1995) examined the issue of student performance and gender within universities located in the State of Victoria using the Grade Point Average measure of student performance; indeed this was one of the earliest Australian studies to embrace the finer measure of student performance than simply using the crude student progress rate that does not take into account the different pass grades utilised in institutions. Dobson and Sharma (1995) established that women tend to outperform men in terms of university undergraduate studies. It will be interesting to see whether this finding is still true almost one and half decades later, in terms of the present study's findings on the issue. The latter will also adopt the GPA definition developed by Dobson and Sharma (1995) in order to maintain consistency and comparability of findings.

Dobson and Sharma (1998) also dimensioned the cost of failure in Australian higher education for undergraduate students using factors implicit in the then national government's funding model. Indeed they found that the cost of funding for failure of bachelor degree subjects in Australia during 1996 was approximately AUD$360 million. This is clearly a relatively large cost to the system- one that needs to be addressed by the development of strategies to minimise the student failure. Such a finding also provides justification for the current study that hopefully will assist universities to develop appropriate strategies in order to manage the relatively high economic cost of student failure.

Murphy, Papanicolaou and McDowell (2001) reported on an institutional study of student performance and possible links with prior high school grades as measured by universities entrance rank in Victoria, Australia. Their study established that students with an entrance rank above 80 (top 20% of students in terms of secondary school studies in Victoria) showed a positive correlation between school and university performance. However, Murphy et al. (2001) found no correlation between secondary and tertiary level student performance within the Case Study University for entrance rank of between 40 and 80. But a variable relationship was found for entrance scores lower than 40. Although the present study does not consider the issue of entrance rank scores, this Australian study findings does have implications for how students are selected for entry to higher education. For instance, a policy implication of this study is whether entrance rank is a suitable metric to be used for selecting students into programs with a cut off score below 80. Clearly measures apart from entrance rank ought to be used for student selection into many of the universities programs.

Hijazi and Naqvi (2006) report on a study of student performance undertaken within a developing country. Their student performance measure used grouping of marks in

University examinations. Their study found a positive relationship between student academic performances on the one hand and class attendance and mother's level of education on the other. However, they found a negative relationship between academic performance and family income, number of study hours after college and mother's age. All other things being equal, one would have expected a positive relationship between hours of out-of-class studies and student performance. This issue will be considered further in the present study.

The Associated Press (2007) reported a relationship between students sleeping patterns and academic performance. In particular, it suggests that students who never study at night have slightly higher grades than those who do. More specifically, the Associated Press (2007) reports that a survey of 120 students at the St Lawrence University (a small liberal arts college in northern New York, US) found that students who have never studied all night have higher grades than those that have not. Undoubtedly though such factors are beyond the institutional control but perhaps such studies could be used to advise students on the adoption of optimal study strategies.

Methodology

Although the Federal Government has used the Student Progress Rate in the Learning and Teaching Performance funding, the researchers believe that it is a relatively crude measure of student performance that does not distinguish between say a bare pass and higher grades such as high distinction. Accordingly, the present study uses the Cumulative Grade Point Average (CGPA) which is a numerical calculation based on mean GPA taken from student management systems with following formula:

$$\text{CGPA} = \frac{\text{The sum of grades}}{\text{Number of courses}}$$

The formula provides an overall view of student performance and leading indicator of student achievement as required by teaching and learning institutions.

The demographic variables for the study were extracted essentially from the files supplied by the institution to the Federal Government as part of their accountability measures and reporting whilst the perceptions of good teaching and other related learning and teaching quality indices were derived from the University's Course Experience Survey (CES).

CES are compulsory and conducted every semester (twice a year) at the end of teaching period and include coverage of offshore students. Survey forms (http://alturl.com/2tv8) are distributed to all students in the class or through on-line using internet. Survey data specifically mined for the paper using semester-1 2008 Higher Education information

which covers 69.1% of the case study University's courses (1,440 number of courses surveyed) with 45,803 student respondents.

Grades data were extracted from student systems for the list of students who studied in semester-1 2008 along with the course code. Grades were then recoded for classification (fail, pass, and higher pass), summarized and aggregated by course code.

These two main elements (CES and Grades) data were then cleansed and transformed to study pattern/relationship between variables such as student performance with their course experience using specialised statistical software.

Student Performance and Demographic Variables

The study did collect some demographic and related variables on the composition of the student population in the subjects under examination. In particular, the researchers had access to attendance load (full-time study/part-time study), age grouping, whether the students were international or domestic and the number of hours of outside class study by students. Table 1 below shows the Pearson Correlation between these variables and the pass rate in the subject for students. The following observations are made on the data contained in Table 1:

- Attendance load does not appear to be a significant variable in terms of student performance.
- As the percentage of younger students (those less than 25 years of age) increases, student performance declines ($r=-0.067$, $p<0.05$). Conversely as the percentage of the older age group (25 years or older) increases, the student performance improves ($r=0.067$, $p<0.05$).
- Whether students are domestic or international does not appear to significantly impact on their pass rates.
- There is a negative correlation between the lower percentage of study hours (4 hours or less) and student performance ($r=-0.063$, $p<0.05$). Conversely as the percentage of students in the subject studying more than 4 hours per week increases, so does their performance ($r=0.063$, $p<0.05$). Clearly out of class study duration is related to student performance.

Table 1: Pearson Correlation between Subject Pass Rate and Demographic Variables

Variable	Correlation with Pass Rate	Statistical Significance
% Full-time	0.019	$p>0.05$
% Part-time	-0.019	$p>0.05$
% < 25 Years	-0.067	$p<0.05$
%>=25 Years	0.067	$p<0.05$
% International	0.036	$p>0.05$

Variable	Correlation with Pass Rate	Statistical Significance
% Domestic	-0.036	$p>0.05$
% 4 hours or less study per week	-0.063	$p<0.05$
% > 4 hours study	+0.063	$p<0.05$

The Case Study University has three major disciple groupings of academic organisational units, namely, Business, Science, Engineering and Technology and Design and Social Sciences. Do the broad disciplines matter in terms of student performance? The study found that Design and Social Sciences (mean pass rate=92.25%) performed better than Business students (89.98%) with the mean difference being statistically significant ($t=3.27$, $p<0.01$). Similarly the Science, Engineering and Technology students (88.95%) were outperformed by the Design and Social Sciences discipline with the difference in mean performance being highly significant ($t=5.30$, $p<0.001$). But the mean difference in performance between Business and Science, Engineering and Technology was not statistically significant ($t=1.11$, $p>0.05$).

Student Performance and Learning and Teaching Outcomes

Table 2 compares the 21 learning and teaching outcomes as measured by the Course Experience Questionnaire with courses sustaining relatively high pass rates (pass rates of 85% or more) with lower pass rates. In 16 out of the 21 reported outcomes the higher pass rate courses also sustained more positive learning and teaching performances. However, in a number of cases the differences in learning and teaching satisfaction were relatively minor (less than 5%) with the following exceptions:

- Courses where students believed that they were getting helpful feedback on how they were going in their studies also sustained better performance; indeed the mean difference in agreement of the low and high performing sub-groups was highly significant ($t=4.3$, $p<0.001$). It is clear that student feedback on their learning progress is positive in terms of their course examination results.
- Similarly the better performing students were 7% more likely to believe that the course contributes to their confidence in tackling unfamiliar problems with the difference in mean agreement being highly significant ($t=3.1$, $p<0.001$).
- Again the superior performing students sustained nearly 10% greater agreement on the survey item that the teaching staff motivate them to do their best work and the mean difference was highly statistically significant ($t=4.0$, $p<0.001$).
- It was found that the better student performing group also experienced around 9% greater enjoyment in doing the work for their course than was the situation with the students with lesser performance in their examinations with again the difference in mean agreement being highly significant ($t=3.6$,$p<0.001$).
- However, the better performing students were nearly 6% less likely to agree that web-based materials for course were effective for learning with the mean difference being statistically significant ($t=2.1$, $p<0.05$).

- The superior performing group expressed 7% greater satisfaction at their capacity to participate in class than was the case with the lesser performing students with the mean difference in agreement between the two sub-groups being highly significant ($t=4.3$, $p<0.001$). It appears that student engagement in the learning and teaching process produces positive assessment outcomes.
- The better performing student group were 7% more inclined to agree that the academic staff worked hard to make the course interesting to them with the mean difference in agreement between the sub-populations being highly significant ($t=3.6$, $p<0.001$).
- Similarly the superior performing students expressed nearly 7% greater agreement that what they learned from the course could be applied to their career than was the case with other students ($t=3.7$, $p<0.001$).
- The better performing students were 12% more likely to agree that the academic staff made real effort to understand the difficulties faced by the students in their course with again the mean difference in agreement being highly significant ($t=5.1$, $p<0.001$). Clearly a bit of empathy with students and understanding of their difficulties go a long way to motivating better performance by students.
- Students sustaining superior performance expressed 16% greater satisfaction with academics spending effort in commenting on the students' work than was the case with other students and the mean difference between the two sub-groups was highly significant ($t=5.0$, $p<0.001$).

Table 2: Course Experience Survey Outcomes and Student Performance

Question	Mean Percentage Agreement		
	Pass Rate <85%	Pass Rate >=85%	% Difference
Learning objectives in course clear	73.47	74.70	1.67
Learning what I expected	71.58	72.43	1.19
Course is well-organised	69.57	68.41	-1.67
Lecturers extremely good at explaining things	68.80	71.54	3.98
Teaching staff gave helpful feedback	56.97	63.46	11.39
Course contributes to confidence in tackling unfamiliar problems	59.85	64.20	7.27
Assessment tasks require demonstration of what learned	76.89	77.58	0.90
Work required in course about right	70.51	72.93	3.43
Teaching staff motivate me to do my best work	60.83	66.80	9.81
Enjoy doing the work for this course	61.55	66.78	8.50
Find learning resources for this course useful	68.52	68.43	-0.13
Web-based materials for course effective for learning	59.62	56.15	-5.82
Effective use of computer-based teaching materials	54.39	53.39	-1.84
Facilities are adequate	73.84	70.76	-4.17
Feel I can actively participate in classes	70.16	75.41	7.48
Good balance of theory and practice	64.55	66.77	3.44
Teaching staff work hard to make course interesting	68.97	73.96	7.24
Can use what I am learning in course in my career	70.23	74.90	6.65
Staff made real effort to understand difficulties I'm having with work	58.31	65.57	12.45
Staff put lot of time in commenting on my work	48.58	56.57	16.45
Overall satisfaction with course	68.69	71.32	3.83

Given the above outcome, in stage two of the study, a correlation analysis was undertaken between student performance and their responses to the Course Experience Survey. Highly significant positive correlation is noted between the percentage of students with pass or better results in their course and the following areas:

- Good teaching scale (r=0.15)
- Teaching staff giving helpful feedback (r=0.12)
- Course contributes to student confidence in tackling unfamiliar problems (r=0.12)
- Teaching staff motivating students to do their best work (r=0.11)
- Where students enjoy doing the work for the course (r=0.13)
- Students feel that they can actively participate in classes (r=0.15)
- Teaching staff work hard to make the course interesting (r=0.11)
- Where course learning is perceived to be applicable to the student's career (r=0.12)
- In situation where staff understood the difficulties faced by students in undertaking the work for their courses (r=0.15)
- Where staff put in a lot of time commenting on the student's work (r=0.16)

The above reveals that students exposed to good teaching, receive adequate feedback on their work, are engaged in the learning process and are active learners tend to perform better in their course assessment.

It is acknowledged, however, that although the Pearson Correlation may be highly significant, many of the values are relative low in absolute terms and undoubtedly require further research.

Table 3: Correlation Between Course Experience Survey Outcomes and Student Performance

	Pearson Correlation	N	Statistical Significance
Good Teaching Scale	0.147	1319	**
Learning objectives in course clear	0.030	1320	
Learning what I expected	0.056	1321	*
Course is well-organised	0.001	1321	
Lecturers extremely good at explaining things	0.064	1320	*
Teaching staff gave helpful feedback	0.119	1321	**
Course contributes to confidence in tackling unfamiliar problems	0.118	1321	**
Assessment tasks require demonstration of what learned	0.030	1321	
Work required in course about right	0.041	1320	
Teaching staff motivate me to do my best work	0.112	1321	**
Enjoy doing the work for this course	0.128	1321	**
Find learning resources for this course useful	-0.013	1321	
Web-based materials for course effective for learning	-0.048	1302	
Effective use of computer-based teaching materials	-0.005	1290	
Facilities are adequate	-0.070	1321	*
Feel I can actively participate in classes	0.147	1321	**

Good balance of theory and practice	0.052	1321	
Teaching staff work hard to make course interesting	0.112	1321	**
Can use what I am learning in course in my career	0.116	1320	**
Staff made real effort to understand difficulties I'm having with work	0.146	1321	**
Staff put lot of time in commenting on my work	0.159	1320	**
Overall satisfaction with course	0.059	1321	*

* Significant at $p<0.05$ **Significant at $p<0.01$

Conclusion

Certain demographic variables do have an impact on University student performance, according to the findings of this research within a Technological Australian University. For instance the study found that student pass rates in courses tend to improve with age. Could it be that the more mature students have "learned how to learn" and are more conversant with the various learning techniques? Are they less likely to engage in "social activities" and more diligent in terms of studying than the younger students? Clearly these are areas of future research, as they were beyond the scope of the present study.

In an era of globalization of higher education, the study finding that international students perform equally as well as local students is an important one. Most Australian international students herald mainly from South East Asian Region and Asia in general. Given the relatively high cost of higher education and importance Asian families place on the acquisition of University qualifications it is positive to note that international students are making success in terms of their studies in equal measure to Australian students.

The study also found that students spending more out of class time on their studies tend to perform better than their counterparts. Can universities help to develop greater motivation for students to devote more time on their studies, particularly in terms of the younger and less experienced tertiary students? Perhaps greater value added activities can be developed during the early student orientation period for commencing students, if this does not already happen currently. Appointment of mentors to provide on-going advice and reinforcing the initial orientation activities in terms of study strategies may be other options to consider, particularly for commencing undergraduate students who may have greater need to move from "dependent" to "independent" learners.

Academic staff have a major role to play in terms of student performance. The present study found that good teaching, provision of helpful feedback to students, actively engaging students in the learning process and the like all contribute to enhanced student performance. Given the ageing profile of current academic staff in Australia and the expected influx of new and younger academics, perhaps the need for greater staff development activities to ensure that teaching staff are aware of such good practices will help to improve or maintain student performance rates. Although such activities may require additional resources, it may even help to conserve and improve the financial situation for the institution since students who are not academically successful a priori are more likely to drop out from their tertiary studies. Any such reduction in student load will

decrease university revenue and increase student recruitment costs. Hence effective staff development in these areas will provide a positive financial return to the University in the longer term.

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When is the Redundancy Principle Effective in the Multimedia Learning of a Foreign Language?

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Abstract

This study was designed to investigate the effect of two instructional modes (redundancy mode and modality mode) on learning English as a foreign language. Participants were 209 undergraduate Yemeni learners. Those learners were randomly assigned into two groups. Each group was exposed to either the redundancy mode or modality mode. In the redundancy mode, static pictures and audio narration were presented concurrently with redundant on-screen text. In the modality mode, static pictures and audio narration were presented without the redundant of textual information. Results showed that learners who were exposed to the redundancy mode performed significantly better and were significantly more motivated than their counterparts in the modality mode. This finding has added an important caveat. The caveat is that redundancy principle is effective for multimedia learning of English as a foreign language.

Keywords: Multimedia learning; Redundancy principle; Modality principle; Multimedia design

Introduction

In the current era of globalization, English has become the most dominant language of commutation worldwide. Today, many books and resources for the fields of science,

technology, politics, education, commerce, and industry are written in English. It is also the language of medicine and mass media. English is the medium of over 84% of the information stored in the Internet (Graddol, 2000). Therefore, English has become essential literacy skill for non-native speakers of English to ensure full competence in this rapidly changes of the information age (Graddol, 2000; Murray, 2005; Jung, 2006).

However, it is disheartening to note that many Yemeni learners are still lacking basic competency in the English language. This is partly because English in Yemen has no official status. The learning of English is confined only in the classroom. It is merely one of the subjects taught in school rather than a medium of instruction to be used in daily conversation. Learners start learning this subject only at Grade seven (13-14 years old). This scenario gives rise to a situation whereby English is not a popular foreign language in Yemen. As such, Yemeni learners reported to have low proficiency level of English language (Abbad, 1988).

As a result, when learners enter the universities, they might not have adequate vocabulary in developing basic language skills. Learners encountered tremendous difficulties in coping with the university's syllabus particularly with those that taught in English. In addition, most of the Yemeni colleges and universities, if not all, are still very much teacher-centered and taught using the *tabula-rasa* model, where learners are regarded as "empty vessels" to receive "knowledge" passively from the gurus. This archaic and boring traditional teaching method has caused the English language to be difficult, irrelevant and boring to the Yemeni learners. This view is succinctly articulated by Rababah (2005) who states that,

> *"Arab learners find it difficult to communicate freely in the target language. This may be due to the methods of language teaching. It can be also due to the learning environment which some judge to be unsuitable for learning a foreign language"* (Rababah, 2005).

What then is the solution? The learning of English language can be made easier when learners are immersed in an interactive and authentic learning environment (Thanajaro, 2000; Wang, 2005). In an authentic learning environment, learners are stimulated to develop relevant competencies by dealing with materials and learning activities that are designed around 'real life' contexts (Herrington, Oliver, & Reeves, 2003; Murphy, 2009).

Multimedia and computer technologies in general are promising tools to expand the range of ***authentic*** learning for language learning (Wang, 2005). This view was supported by Clark and Mayer (2008) who posit that the rich attributes afforded by multimedia such as interactivity, sound, animation and immediate feedback; provide an environment that is lively and engaging.

However, multimedia technology by itself does not provide an environment for authentic learning. It has to be used with proper instructional design strategies. One of these strategies is based on the Mayer's Cognitive Theory of Multimedia Learning (Mayer,

2001). There are six important principles resulting from this theory. One important principle is the modality principle which states that learning is better with graphics and narration rather than with graphics and on-screen text. This principle can be effectively applied in the teaching of English as a foreign language (EFL). Clark and Mayer (2008) argued that when graphics and words are presented together in visual manner (i.e., as graphics and text), the pictorial channel of the learner becomes overloaded and the verbal channel of the learner is not used at all.

What will happen if graphics and narration are presented together with a redundant on-screen text? This is the core of the redundancy principle. According to Clark and Mayer (2008) learners can learn better from graphics and narration than from graphics, narration, and on-screen text. This is based on the assumption that when graphics and words are both presented together in visual manner (i.e., as graphics and text), the pictorial channel become overloaded. However, is that principle true for EFL learning? Is there any caveat to this principle? Are there any situations in which e-learning courses would be improved by adding redundant on-screen text? This study seeks to provide answers to these questions.

Clark and Mayer (2008) suggest three special situations in which they will not overload the learner's visual information processing system. These situations are: **(a) Kinds of Learner:** the learners must exert much greater cognitive effort to comprehend spoken text than printed text (for example, for learners who are not native speakers or who have specific learning disabilities, or when the verbal material is long and complex or contains unfamiliar key words). This caveat has a great relevance to the present study where the subjects consist of non-native speakers of English. **(b) Kinds of Material:** there is no pictorial presentation (for example, when the screen contains no animation, video, photos, graphics, illustrations, and so on), and **(c) Kinds of Method:** there is ample opportunity to process the pictorial presentation (for example, when the on-screen text and corresponding graphics are presented sequentially or when the pace of presentation is sufficiently slow).

Theoretical framework

The theoretical foundation of this study is based on two learning theories that provide a deeper understanding of how learners acquire second/foreign language. These theories are Krashen's Input hypothesis theory (1981) and Long's Interaction hypothesis theory (1983). Additionally, the theoretical framework of this study is also derived from three relevant instructional design theories that provide clear guidelines for designing a proposed learning environment. These theories are Mayer's Cognitive Theory of Multimedia Learning, Sweller's Cognitive Load Theory, and Paivio's Dual Coding Theory. In addition, this study also used an instructional design model. This model is Jonassens's Model of Constructivist Learning Environment.

According to Reigeluth (1999) the instructional design theories are very different from the learning theories. Learning theories are "prescriptive" oriented, they attempt to provide a deeper understanding of effects that result from phenomena, whereas instructional design theories are "design" oriented, they attempt to provide a direct guidance about the methods and the appropriate situation in which those methods should be used to achieve a particular goal.

There are two possible clear connections between the learning theories and the instructional design theories that were selected for the theoretical framework of the present study. First, Krashen argues that the "comprehensible input" is the only way to acquire a second/foreign language. By comprehensible input, he means that learners should be able to understand what is being presented to them. This theory is related to the Mayer's cognitive theory of multimedia learning. Mayer states that "meaningful inputs" for selection, organization and integration of knowledge have to occur for meaningful learning. This input can be presented in the form of pictures (static pictures or animation) as well as text (either narrative text or on-screen text). Mayer's theory may help to provide a direct guidance to design and produce a meaningful input that is slightly beyond the current level of the learners. Second, Long's interaction theory posits the importance of negotiation meaning on the language input between the learners and native speakers. Long states that learners can make the language input more comprehensible through modified interactions which leads to enhance their learning process. This theory can be connected with the Jonassen's model of constructivist learning environment. Jonassen states that knowledge is individually constructed and socially co-constructed by learners. Therefore, it is necessary to provide an environment where the learners are posed with a problem or question to focus on, and the learning environment provides various tools for interpretative and intellectual support to address the problem or question faced by learners.

Aim of the Study

This study aims to obtain empirical data in an effort to investigate the effectiveness of redundancy principle on learning EFL among Yemeni learners. With this in mind, two presentation modes were developed, namely, redundancy mode, and modality mode. The learners in all the two modes were exposed to the same instructional materials but in different presentation. In the redundancy mode, static pictures and audio narration were presented concurrently with redundant on-screen text. In the modality mode, static pictures and audio narration were presented without the redundant of textual information. Figure 1 depicts example of the redundancy presentation mode and the modality presentation mode. In addition, this study is also aimed to examine the effects of both presentation modes on learners' perceived motivation toward the modes of instruction.

Redundancy mode **Modality mode**

Figure 1: Redundancy Mode (Left Side) and Modality Mode (Right Side)

Hypotheses

The goal of this experiment was to investigate whether using the redundancy mode presentation really facilitates the learning of English as foreign language compared to the modality mode. Hence the following null hypotheses were formulated and computed at the 0.05 level of significance.

Hypothesis 1: There are no significant differences in gain scores as measured by the post-test scores minus pre-test scores among the learners of each presentation modes (redundant mode and non-redundant mode).

Hypothesis 2: There are no significant differences in perceived motivation as measured by Keller's Instructional Material Motivational Scale (1993) among the learners of both presentation modes (redundant mode and non-redundant mode).

Methodology

This study employed a quasi-experimental design. It involves two experimental groups: the redundancy presentation mode and the modality presentation mode. Each group was given a pretest and posttest. The difference between the pretest and the posttest scores was computed and compared to determine the effectiveness of the presentation modes. The two groups were also given the IMMS questionnaire to find out the motivational effects of the two presentation modes. However, both groups did not have pre-experimental sampling equivalence. Rather the groups constituted intact classes, in which equivalency could not be presumed. Thus, the learners' English Entry test scores were analyzed to examine whether the two groups are homogeneous in term of English

proficiency. The independent-groups *t*-test statistical technique was carried out to test if there was statistical difference among the learners of both modes. The results revealed that there was statistically significant difference at $p < 0.05$ level in Entry-Test score for the two presentation modes ($df = 207$, $t = 4.314$ $p = 0.000$). This means that the two modes were not homogeneous in term of English language proficiency. Thus, analysis of covariance was used to reduce the effects of initial groups differences (Meredith *et al*, 2003). This experimental study involved two types of variables; independent variables and dependent variables. The independent variables were the two presentation modes: redundancy mode and modality mode. The dependent variables were the learners' gain scores that were obtained from the differences of the posttest scores minus the pretest scores and their perceived motivation toward the modes of instruction.

The population of this study comprised the undergraduate learners who enrolled in the foundation level (first year) of community colleges in Yemen. There are five community colleges located at different Yemen's cities. Due to time and cost constraints, only one community college has been selected randomly. There were eight classes involved in this study. Four classes were assigned randomly to the group of redundancy mode and four classes were also assigned randomly to the group of modality mode. Initially, a total of 237 learners who studied in the higher institution that was chosen for this study were participated in the experimental study. However, 28 learners from the whole sample were omitted and were not considered in the analyses because of their attrition. They were either found absent in pre-test or post-test during the day of testing. Thus, only the data of 209 learners were considered in the analyses. Each participant learner was provided with a computer to ensure that there is no unnecessary interaction between the learners.

Research instrumentation

To measure the effect of redundancy mode compared to modality mode on learners' performance and on their perceived motivation, three instruments were used to collect data. These instruments are RLO-based test (pre-test and post-test) and the Instructional Material Motivation Scale (IMMS).

The RLO-based test (pre-test and post-test) consisted of 20 multiple choice questions that were similar in content but were arranged in a randomized order to avoid the "test-wise" effect. Those multiple choice questions were developed to determine the learners' understanding of the English topics and sub-topics for unit one and unit two of the new interchange book one. This book published by Richards *et al.,* (1998) and was designed for young adults and adults who learn English as a foreign language. The cognitive level of pretest and posttest items was classified according to Bloom's revised taxonomy that was proposed by Anderson and Krathwohl (2001). The reliability of this test was computed using the Cronbach's alpha procedure. Its Cronbach's alpha reliability coefficient was 0.81.

Instructional Material Motivation Scale (IMMS) was developed by Keller (1993). This questionnaire was used to measure the learners' motivation towards the modes of

instruction. The IMMS questionnaire (see Appendix A) comprised of 36 Likert-type statements that are based on four components of ARCS motivation model: Attention, Relevance, Confidence, and Satisfaction. Learners responded to both the positively and negatively statements on scale ranges from 1 (Not True) to 5 (Very True). This instrument was translated into the Arabic language to produce an Arabic version with items that were equivalent in meaning to the original English version. The translation process includes forward and backward translation, subjective evaluations of the translated items, and pilot testing. First, two expert translators bilingual in Arabic and English were asked to translate the English version into Arabic language. The Arabic version was back-translated again into English by two other expert bilingual translators. Then, the back-translated items were evaluated and reviewed by two expert lecturers through comparing the two instruments (the original "English version" and the translated "Back-translated version") to assure that there are no differences in the meaning between the original and the translated questionnaire.

The instrument was pilot testing with a group of 30 learners from the target audience. Those learners were excluded from the actual sample of this study. The internal consistency of the overall translated instruments (Arabic version of IMMS questionnaire) was determined. The 36 items of the IMMS Arabic version questionnaire based on the pilot testing yielded a reliability of 0.93, as measured by Cronbach's alpha reliability coefficient. This reliability coefficient showed that the instrument was highly reliable.

Experimental protocol

To maintain consistency in instructions and procedures, teacher assistants who participated in this study were given the same instructions prior to data collection of the experimental study as follows: Two weeks before the treatment, the learners were given the pre-test. Immediately after the treatment, the learners were given the post-test and the Keller's instructional material motivation Scale. Appendix B provides a protocol on how the experimental study conducted.

Statistical analysis

The data was treated statistically using SPSS software (Version 15). One-way analysis of covariance ANCOVA was employed to examine if there was significant difference in the adjusted mean of the gain scores across the two presentation modes, while controlling the Entry-Test. All the prerequisite assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate were tested to ensure that there was no violation for using this statistical technique. Mann-Whitney U-test was also performed to test the data that was collected from the IMMS questionnaire to investigate the effect of the two presentation modes on the learners' perceived motivation towards the instructional mode. A statistically significant difference was considered when $p < 0.05$.

Distribution of Learners

The 209 learners were divided into two experimental groups. Each group was assigned into one of the two presentation modes. Table 1 shows the number of learners assigned to each presentation modes: the redundancy mode and the modality mode.

Table 1 Learners distribution into learning modes

Presentation Modes	Number of Learners
Redundancy Mode	98
Modality Mode	111
Total	209

Results

The results section is organized according to the research hypotheses.

Results Pertaining to Null-Hypothesis one (redundancy mode = modality mode based on gain scores)

The results of ANCOVA revealed that there was a significant adjusted mean difference between the two presentation modes on the gain scores. The F ratio of gain score (1, 206) = 20.918, $p < 0.05$ (see table 2). This means that the presentation mode had a mean effect on gain scores. The descriptive and inferential analysis reveal that the learners who were exposed to the redundancy mode (M = 6.07, SD = 2.578, Adjusted M = 6.468, p = 0.000) significantly outperformed the learners who were exposed to the modality mode with an adjusted mean difference of 1.403. Therefore Hypothesis one was rejected.

Table 2: One-way ANCOVA of gain score by presentation mode with Entry-test score as covariate

Dependent variable: Gain score

Source	Type III SS	df	MS	F	Sig.
Covariate					
Enter-test score	322.024	1	322.024	71.684	0.000
Main effect					
Presentation mode	**93.971**	**1**	**93.971**	**20.918**	**0.000**
Error	925.413	206	4.492		
Total	8114.000	209			
Corrected Total	1269.904	208			

$p < 0.05$

Effect sizes of redundancy mode and modality mode were also studied because there were significant differences between the two modes. To calculate effect size, the difference of means of both presentation modes was divided by the pooled standard deviation (Coe, 2002). The results show that the effect size of redundancy mode towards modality mode was 0.5726, which in Cohen's (1988) terms would be considered as a medium effect size.

Results Pertaining to Null-Hypothesis two (redundancy mode = modality mode based on their perceived motivation)

Table 3 presents the results of Mann Whiten U test which revealed that there was a significant difference between the two presentation modes on the learners' perceived motivation (U = 2516.500, Z= -6.703, p = 0.000). These statistical results rejected the null hypothesis *H02*.This means that the presentation mode had a mean effect on perceived motivation. Learners in redundancy mode (Mean rank = 134.82, Sum ranks = 13212.50, p = 0.000) were significantly more motivated than their counterparts in the modality mode. Therefore, this null hypothesis was also rejected.

Table 3: Mann Whiten U test of IMMS score by presentation mode

Presentation mode	**IMMS Score**				
	Mean Rank	**Sum of Ranks**	**MW-U**	**Z**	**Sig.**
Main effect Presentation mode			**2516.500**	**-6.703**	**0.000**
Redundancy Mode, N = 98	134.82	13212.50			
Modality Mode, N = 111	78.67	8732.50			

Discussion

Effects of the Redundancy Mode vs Modality Mode Based on Gain Score

There were significant differences in gain scores across the two presentation modes. Generally, the effect size in gain scores suggested that the redundancy mode had more positive effect than the modality mode. These findings supported the assumption that adding redundant on-screen text might improved the learning in few special situations, such as the learners in this study, who might be encountered difficulties in comprehending the audio narration as it was foreign language to them (Clark & Mayer, 2008). Furthermore, these results were consistent with Mayer and Johnson, (2008); Ling and Yuen, (2008); Kalyuga, (2009); and She, *et al.* (2009) findings who found positive effect of redundancy principle on learning.

The redundancy mode was designed in such a way that enabled the learners to select relevant cues, either from the audio narration or from the on-screen text. The instructional materials of the redundancy mode were presented in static pictures and audio narration with redundant on-screen text. This redundant of textual information was placed next to its relevant picture. Such a multimedia presentation was consistent with Mayer's contiguity principle which states that, "learners learn better when corresponding words and pictures are presented near each other on the screen" (Clark & Mayer, 2008). The results of this study was supported by Mayer and Johnson (2008) who state that redundant on screen-text could provide positive effect on learning when it was "placed next to the portion of the graphic that it describes". They also suggested that the on screen-text should be short and the core action as described in the audio narration should be highlighted.

Although, the redundant on-screen text in this study was identical to the narration (yet it was short), learners performed better. It was possible that this redundant text had provided the learners with cues to overcome the difficulties that they encountered in comprehending the audio narration particularly the complex and unfamiliar words. The findings of this study is consistent with Kalyuga's (2009) study, who found that when the text presented in short and in logical parts the concurrent presentation of auditory material with identical on-screen text would not have detrimental effect on learning. On the other hand, when the text is long, the learners will have to devote a large amount of mental resources to select and relate many relevant elements of auditory and visually information within the limited time. Thus, it resulted in the overload of the working memory (Kalyuga, 2009).

Do to the fact that learning English in Yemen is normally within the confines of the classroom, learners' English proficiency is limited. Thus, it was possible that learners might have a poor phonological system in which they had limited abilities to recognize the spoken words adequately. This limitation had a detrimental effect on learning (Rvachew & Grawburg, 2008). Non-native learners of English have to exert greater cognitive effort to understand the narration, which leads to take up their mental resources at the expense of the actual task of learning. Thus, the extraneous cognitive load may be imposed. This view was also articulated by Liu (2002) who says that non- English language learners encounter difficulties in comprehending the words meaning of unfamiliar topics, vocabulary and accents. He extended these difficulties to include "even when they think they have identified the words, these words often do not fit the context" (Liu, 2002).

Learners in the redundancy mode were provided with the opportunity to reduce this extraneous cognitive load. The on-screen text helped the learners to identify the complex English words with no need to exert additional cognitive effort. On the other hand, learners who exposed to the modality mode do not have this opportunity. As a result, they compelled to exert additional cognitive effort that usually did not contribute to the learning which subsequently hindered language learning. This view supported by Amna (2007), who found that many EFL learners stop listening when they faced unfamiliar

word and think about the meaning of that word. This impaired the learning because the learners missed to obtain the information from the narration (Amna, 2007).

This particular finding was supported by (Chiang & Dunkel, 1992) who conducted a study to investigate the listening comprehension for learners of English as foreign language. Two groups with different listening proficiency (high listening proficiency and low listening proficiency) were listening to four different types of discourse. These discourses were (a) familiar-unmodified, (b) familiar-modified, (c) unfamiliar-unmodified, or (d) unfamiliar-modified. The modified discourse contained redundant information. The results showed significant interaction between speech modification (redundant vs. non-redundant speech) and listening proficiency level indicated that learners with high listening proficiency benefited more from speech modification that contained redundant information. Chiang and Dunkel (1992) concluded that redundancy had a significant effect on listening comprehension for learning English as a foreign language.

The finding of the present study was also consistent with finding by Vetere and Howard (2000), who examined the effects of four multimedia presentations to facilitate the learning of a function and operation of five electrical circuits. In their study, learners were presented to one of four instructional modes: diagram-only, diagram-text, diagram-speech or diagram-text-speech. They reported that learners with low prior-knowledge benefited better with redundant auditory and textual information (diagram-text-speech).

The finding of this study was also supported by Ling and Yuen (2008) who designed a procedural-based course incorporating the six multimedia principles of Clark and Mayer (2008) into learning objects. Their study include the redundant on-screen text into audio narration. The findings of their study showed tha the redundant on-screen text did not increase the cognitive load because of learners' language proficiency. This finding is also consistent with She's, et al (2009) study, who attempted to increase learning efficiency by incorporating the redundancy principle. Their findings were also showed positive effedt of redundancy principle. They concluded that Mayer's redundancy principle needs to be modified for language teaching.

Effects of the Redundancy Mode vs Modality Mode Based on Perceived Motivation

There were also significant differences in perceived motivation across the two presentation modes. Generally, learners who exposed to the redundancy mode significantly more motivated than those who exposed to the modality mode. These particular findings can be attributed to several reasons. It was possible and also highly probable that, the on-screen text had provided the learners with cues to understand the English narration. Therefore, learners who perceived the redundant of textual information might minimise their difficulties in comprehending the spoken words. This improved the learners' perceptions of enablers in which they feel that their effort would be facilitated rather than impeded (Lent, *et al.,* 2000). When learners perceive enabler (on-screen text),

they become satisfied and their motivation increased. This view is supported by Howard, *et al.* (2006) that learners who perceived environmental feature as enablers rather than barriers had significantly higher motivation to learn.

Another possible reason for positive effect of the redundancy mode on learners' motivation could be attributed to the potential role of the on-screen text in capturing their attention. It was possible that the on-screen text was served as a technique which can be aroused and maintain the learners' attention. Thus, it could be possible that learners in redundancy mode obtained significantly higher IMMS score and motivated more than their counterparts in modality mode. This view is consistent with (Karoulis, 2007) who state that attention is the first and single most important factor of the ARCS model. It is a key to gain and maintain the learners' motivation (Taran, 2005). In addition, the unusual presentation of the redundant on-screen text concurrently with the audio narration aroused the learners' curiosity to comprehend the narration that was foreign language for them. It was, then, reinforced their perceived motivation towards the redundancy mode.

Conversely, in the modality mode the instructional materials were presented in form of static pictures and audio narration only. There was no redundant of textual information that could be used as a technique to arouse learners' attention. Thus, it was possible that learners in the modality mode failed to pay attention which subsequently weakened their perceived motivation towards the instructional mode. Limited use of English was also an important issue that might negatively affect the learners' motivation. As previously stated, learners who perceived barriers were motivated less than those who perceived enablers.

Both of the presentation modes (redundancy mode and modality mode) were similar in term of motivation design. The four components of ARCS model: attention, relevance, confidence, and satisfaction were embedded into the learning environment of the two presentation modes. However, in the redundancy mode, the redundant on-screen text provided additional technique that could play an important role to arouse and sustain the learners' attention. Attention is the prerequisite factor for all the others (relevant, confidence, and satisfaction). This view was in line with Taran (2005) who states that learners would be unable to feel successful confident if the learning environment failed to capture their attention.

This finding is also supported by Astleitner and Koller (2006) who conducted experimental study to test the effects of four types of multimedia-based instruction. These types were: multimedia-based instruction that had not ARCS strategies, multimedia-based instructional that had attention strategies, multimedia-based instructional that had relevance strategies, and last multimedia-based instructional that had both attention and relevance strategies. The results indicated that attention strategies had stronger effect on learners' motivation to learn.

This finding is in line with finding by Toh (1998) who conducted a study on cognitive and motivational effects of two multimedia simulation presentation modes. These presentation modes were concurrent mode and consecutive mode. In the concurrent mode, animated graphics and textual information were presented concurrently with

redundant audio narration. In the consecutive mode, textual information and redundant audio narration were first presented followed by animated graphics. The study showed that learners who used the concurrent mode of multimedia simulation were gained higher IMMS scores compared to those learners who used the consecutive mode.

In addition, feelings of discomfort, confusion, tension and anxiety usually occurred to many learners who were exposed to the new experience. According to Vickneasvari (2007),Woods (1994) states that these negative feelings would hinder the learners' motivation. However, redundant on-screen text could stimulate positive feelings towards learning. The learners were able to select relevant words either from the narration or from the redundant of textual information. This assisted the learners to understand the spoken English words particularly the unfamiliar and complex words. Therefore the learners were able to arouse their interest and motivate more in redundancy mode compared to the modality mode.

Implications & conclusions

The significant positive effect of the redundancy mode over the modality mode of this study has added an important caveat. The caveat is that this principle is true for multimedia learning of English as a foreign language. This study has provided empirical evidence to support the importance of looking into the fine nuances in the design of multimedia learning. The redundancy principle should not be a *one size fits all principle*. For example in special circumstances, the redundancy mode is superior to the modality mode where on-screen text had instead reduced the cognitive load rather than increasing it. In terms of the redundancy effect, it was found that the presence of redundant information alone did not impair learning. The overall results of this study suggest that educational practitioners need to think seriously about the effects of multimedia presentations on learning efficiency, especially the use of dual-mode presentation as an instructional format should be considered cautiously, or it may only impair learning. In conclusion, although the future of multimedia learning is bright, what is needed is creative and innovative ways of multimedia design to make learning enjoyable and memorable. This study is an attempt to fulfill this need.

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APPENDIX A: The IMMS QUESTIONNAIRE

UNIVERSITI SAINS MALAYSIA

Instructional Materials Motivation Scale (IMMS)

(Comparative Preference)

by

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Permission to use this instrument is obtained by

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Your answers to these questions will greatly assist us to plan and design effective and interesting instruction. The answers that you give not influence your grade. Thank you for your kind cooperation.

INSTRUCTIONS

1. There are 36 statements in this questionnaire. Think about each statement in relation to the instructional materials you have just read, and indicate how true it is. Give the answers that truly apply to you, and not what you would like to be true, or what you think others want to hear.
2. Think about each statement by itself and indicated how true it is. Do not be influenced by your answers to other statements.
3. Record your responses on the answer sheet that is provided. The answers you give will be confidential, and will not affect you in any way. Use the response scale printed below. Thank you.

1 (or A) = Not True
2 (or B) = Slightly True
3 (or C) = Moderately True
4 (or D) = Mostly True
5 (or E) = Very True

1. When I first looked at this lesson, I had the impression that it would be easy for me.
2. There was something interesting at the beginning of this lesson that got my attention.
3. This material was more difficult to understand than I would like it to be.
4. After reading the introductory information, I felt confident that I knew what I was supposed to learn from this lesson.
5. Completing the exercises in this lesson gave me a satisfying feeling of accomplishment.
6. It is clear to me how the content of this material is related to things I already know.
7. Many of the pages had so much information that it would be hard to pick out and remember that important points.
8. These materials are eye-catching.
9. There were stories, or examples that showed me how this material could be important to some people.

10. Completing this lesson successfully was important to me.
11. The quality of the writing helped to hold my attention.
12. This lesson is so abstract that it was hard to keep my attention.
13. As I worked on this lesson, I was confident that I could learn the content.
14. I enjoyed this lesson so much that I would like to know more about these topics.
15. The pages of this lesson look dry and unappealing.
16. The content of this material is relevant to my interests.
17. The way the information is arranged on the pages helped keep my attention.
18. There are explanations or examples of how people use the knowledge in this lesson.
19. The exercises in this lesson were too difficult.
20. This lesson has things that stimulated my curiosity.
21. I really enjoyed studying this lesson.
22. The amount of repetition in this lesson caused me to get bored sometimes.
23. The content and style of writing in this lesson convey the impression that its content is worth knowing.
24. I learned some things that were surprising or unexpected.
25. After working on this lesson for a while, I was confident that I would be able to pass a test on it.
26. This lesson was not relevant to my needs because I already knew most of it.
27. The variety of reading passages, exercises, illustrations, etc. helped keep my attention on the lesson.
28. The style of writing is boring.
29. I could relate the content of this lesson to things I have seen, done, or thought about in my own life.
30. There are so many words on each page that it is irritating.
31. It felt good to successfully complete this lesson.
32. The content of this lesson will be useful to me.
33. I could not really understand quite a bit of the material in this lesson.
34. The good organization of the content helped me to be confident that I would learn this material.
35. It was a pleasure to work on such a well-designed lesson.

36. The reward that I received for my effort is fair.

Thank you for your kind cooperation

APPENDIX B: RESEARCH PROTOCOL FOR DATA COLLECTION (TREATMENT STUDY)

Before conducted the treatment study, the teacher assistants (facilitators) were given the same instructions on how to collect the data of the treatment study for the two experimental groups (group of redundancy mode and group of modality mode).

Two weeks before the treatment

The facilities in the computer laboratory were checked and the RLO-based pre-test installed. It is also ensured that each student will have independent computer. Then, the RLO-based test was administered.

Administration of the RLO-based pre-test

This test was administered as follows:

a. Teacher assistants were firstly ensured that each student entered his or her identification card. They say:
"Please do not forget to enter your school identification card number before you start answering the test."

b. Teacher assistants were briefly explained the purpose of the RLO-based pre-test. They say:
"This test contains 4 sections each section consists of 5 multiple-choice questions. A total of the test items are 20 multiple-choice questions. You are required to answer all the questions. This test is closed book test, no notes are allowed. You will have 40 minutes for this test. Please start."

c. Teacher assistants ensured that all the students were entered their identification card number before they leave the computer laboratory.

Immediately after the treatment study

Immediately after the treatment, the RLO-based post-test and the Instructional Materials Motivation Survey (IMMS) were administered. There was a break time between the two tests. Those tests were administered as follows:

Administration of the RLO-based post-test

First, the computer laboratory was checked and the RLO-based post-test installed. It is also ensured that each student will have independent computer. Then, RLO-based post-test administered as follows:

a. Teacher assistants were firstly ensured that each student entered his or her identification card. They say:
"Please do not forget to enter your school identification card number before you start answering the test".

b. Teacher assistants were briefly explained the purpose of the RLO-based post-test. They say:
"This test contains 4 sections each section consists of 5 multiple-choice questions. A total of the test items are 20 multiple-choice questions. You are required to answer all the questions. This test is closed book test, no notes are allowed. You will have 40 minutes for this test. Please start".

c. Teacher assistants ensured that all the students were entered their identification card number before they leave the computer laboratory.

Administration of the Instructional Materials Motivation Survey (IMMS)
This test was administered as follows:

a. Teacher assistants were firstly ensured that each student wrote his or her identification card number at the top of the IMMS scoring sheet. They say:
"Please do not forget to write your school identification card number at the top of the IMMS scoring sheet".

b. Teacher assistants were briefly explained the purpose of the Instructional Materials Motivation Survey (IMMS). They say:
"This Instructional Materials Motivation Survey contains 36 statements. You are required to enter your answer for all the 36 statements on the IMMS scoring sheet. Think about each statement in relation to the courseware you have just explored, and indicate how true it is. Pleas give the answer that truly apply to you, and not what you would like to be true, Think about each statement by itself and indicated how true it is. Do not be influenced by your answers to other statements. Please be sure that the answers you give will be confidential, and will not affect you in any way".

c. Teacher assistants ensured that the number of scoring sheet was matched with the number of the students presented.

An Analysis of the Lesson Plans of Tenth Grade EFL Teachers in Al-Qaser Directorate of Education

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Abstract

This study aimed to analyze the level of behavioral objectives formulated in the lesson plans by English as a Foreign Language (EFL) tenth grade teachers in the AL-Qaser Directorate of Education. Bloom, Krathwohl, and Simpson's taxonomy of the behavioral objectives were used, and its relation to teachers' experience and teachers' academic qualifications were evaluated. The domains of the behavioral objectives that these EFL tenth grade teachers preferred in formulating their lesson plans were also assessed according to their academic qualifications and teaching experience .The sample of the study is of the population comprising all EFL tenth grade male and female teachers who were teaching (24) during the second semester in 2008/2009.They formulated 586 behavioral objectives. Percentages, frequencies and chi-square test (χ^2) were used. The findings were as follows: The highest percentage of the behavioral objectives was (47.95%) in the affective domain. There were statistically significant differences between the formulated behavioral objectives due to teachers' experience, and there were no statistically significant differences due to teachers' academic qualifications. It was also found that 55% of the EFL teachers preferred to formulate the affective objectives in their lesson plans.

Introduction

Teachers are not conducting themselves correctly, nor could they manifest their concepts clearly or determine their proper directions unless they put in mind and state their specific defined objectives. The clearly defined objectives are an indicator to the success of the issue that will be hopefully implemented. They are also the determinant of the implementation steps, the basis upon which the evaluation processes are built. When the teacher sets the objectives he or she tries to achieve them, he or she starts conceptualizing what could be produced while doing this job. Then, he or she tries to express these

conceptions in the words that identify his or her endpoint; so that he or she can select the best means to achieve these objectives. Since the educational process is one of the most salient societal means to create the good person who is capable of working on reforming the community and achieving its luxury, it is important to shed light on the objective stating process; which leads to the achievement of the community aspirations and desires (Mosa,1989).

Teaching is a planned process that tries to achieve the objectives of a certain curriculum or study topic in order to help the learner acquire some of the skills, directions or themes included in the goals (Kabbadh, 2007). Thus, the teacher should formulate the objectives in a way that reflects the educational goals; which results in creating an educational setting and providing the educational activities and media that help the learner achieve these objectives. This is all called the daily lesson planning process. Abu-Hola andAL-Momani (2000, p: 29) defined a lesson plan as" a teacher's own guide to effectively handle the teaching- learning process under the given circumstances, which are unique to each individual teacher". Effective teaching requires clarification and understanding of teacher's goals and preparation of objectives that are to be achieved. Plans for effective teaching have their roots in well prepared goals and objectives. So it is impossible to achieve systematic and measurable results without writing the objectives carefully.

Behavioral objectives play a major role in the process of preparing the lesson by teachers. This is also the core component of an effective lesson plan. If defined and used consistently, they become a highly effective way to indicate and communicate with others, and to specify observable student behaviors, as the teacher is a key element in implementing the school curriculum and is the director of all learning – teaching processes. All universities, colleges and educational institutions are concerned with preparing teachers, trying to develop their educational, professional and academic competencies, teaching them what the general and specific objectives of teaching at all educational levels, making them practice the lessons preparation process through the teaching methodologies subjects, teaching them how to elicit the curriculum's general objectives into unit specific objectives and even subject matter specific objectives. From this the teacher could deduce the appropriate educational activities and media to use, in addition to the mechanism of evaluating the lesson objectives (Abu-Hola and AL-Momani, 2000).

The Ministry of Education in the Hashemite Kingdom of Jordan emphasizes the use of behavioral objectives approach by teachers. It does this through teachers' training activities and courses in the mechanism of lesson preparation, behavioral objectives setting and evaluation. Teachers' Supervisors also found that the stating of behavioral objectives provides them with a useful reference in monitoring teachers' performance in executing the lesson plan. It has proven also to be a good evaluative tool of the teaching-learning process as experienced through supervisors' visits to classrooms, auditing the teachers' daily preparation notebooks and their other observations (AL-Khawaldeh, 2006).

Zaytoun and Zaytoun (1995) defined the educational objective as "the statements that describe the expected outputs or outcomes in all dimensions of the human character for any educational system (whether regular or irregular) in a certain community". AL-Khataybeh (2002) defined the behavioral objectives as "a linguistic statement that describes a certain behavior that is concrete and measurable which expected from the learner to apply by the end of the teaching-learning activity". Mager (1975) defined an objective as "a description of a performance the teacher wants learner to be able to exhibit before they consider them competent. An objective describes an intended result of instruction, rather than the process of instruction itself". Objectives that are used in education, sometimes are known as learning objectives, behavioral objectives, instructional objectives, or performance objectives are terms that refer to descriptions of observable student behavior or performance that are used to make judgments about learning the ultimate aim of all teaching (Klizik, 2007). Amera (1991) defined the behavioral objective as "the statement that descries the desired change in the individual's level of experience of behavior when he/she successfully ends a particular educational experience. This change should be measurable and assessable".

The educational objectives in general and the behavioral ones in particular have an anticipated influence upon all the dimensions of the educational process. Due to the importance of the educational objectives, they were tackled, analyzed and classified in details by the experts and professionals. They represent a major cornerstone that heps the teacher select the content, teaching methods, teaching media and the appropriate learner evaluation the content, teaching methods, teaching media and the appropriate learner evaluation tools and questions. Effective teaching outcomes might be achieved through the accurate and systematic formulation of the behavioral objectives (Yahya and AL-Manoufi, 1995).

Educators introduce a lot of classifications of the behavioral objectives that emphasize on classifying them into many domains and levels. Bloom's taxonomy of the cognitive domain, Krathwohl's taxonomy of the affective domain, and Simpson's taxonomy of the psychomotor domain are easily understood and probably the most widely applied today. Bloom proposed the cognitive domain, Krathwohl and Bloom proposed the affective domain, and the psychomotor domain was proposed by Simpson (Kabbadh, 2007).

The cognitive domain that refers to intellectual learning and problem solving, cognitive levels of learning include: remembering, understanding, applying, analyzing, evaluating, and creating (Anderson and Krathwohl, 2001)The affective domain refers to the emotions and value system of a person .Affective levels of learning include: receiving phenomena, responding to phenomena, valuing, organizing, and internalizing values (Krathwohl, Bloom and Masia, 1973) .The psychomotor domain refers to physical movement characteristics and motor skill capabilities that involve behaviors requiring certain levels of physical dexterity and coordination .These skills are developed through repetitive practice and measured in terms of speed, precision, distance, procedures, or execution techniques. Psychomotor levels include: perception, set, guided response, mechanism, complex overt response, adaptation, and originality (Simpson, 1972).

Hendam (1981) found that the importance of identifying the objectives lies in the great role they play in identifying and selecting the previous educational experiences, selecting the appropriate activities and procedures for the lesson and conducting the evaluation process. Sa'ada (1991) added that the importance of these objectives lies in the fact that the teacher uses them as a guide while planning for the lesson, they help the teacher compose the test questions quickly and easily and they enable him/ her break down the educational content into small parts that can be effectively and clearly taught and explained. Abu -Alam (1987) said that the objectives identify the learning direction and outcomes and help find the correlation between students' results and lesson content.

Many educational practitioners pointed out the existence of several common weaknesses in stating the behavioral objectives (Gronlund and Brookhart, 2008):

1. The objective is being too broad; not specific.
2. The objective includes more than one learning outcome in a single objective.
3. The objective describes the teacher's behavior instead of the learning outcome and student's behavior.
4. The objective is immeasurable verb.
5. The objective describes the learning process instead of its outcomes.
6. The objective does not specify the minimum level that should be achieved.
7. Not to mention how to achieve the objective.
8. Identifying the learning subjects instead of its outcome.
9. Some phrases can be eliminated; such as "the student should be able to…"

This study looks into the reality of dealing with the behavioral objectives stated by the English language teachers working with the tenth grade in their daily preparation plans in Al-Qaser Directorate of Education.

Statement of the Problem

Teaching English language seeks to achieve a number of objectives that go around all learners acquiring and developing the academic mental and manual skills; besides all appropriate tendencies, directions and values. Despite the interest of the educational institutions in the objectives of English language teaching in terms of knowledge, implementation and monitoring, the disability and failure in the learning outcomes are still there. Hattab (1989) referred that it is difficult to change the mentality of those responsible for educating the coming generations (decision- makers and curriculum designers). He also found that the educational renewals like implementing the behavioral objectives are not applied within the Arab schools the way they should be because the educators are familiar with specific approaches and styles in the educational process.

There is no doubt that the tenth grade is an important phase for the student's future career, as the point where the student identifies his or her stream (whether academic or vocational). It is also obvious that the teacher is the cornerstone of the educational process, the real executive of the curriculum inside the classrooms. So, in order for the teacher to carry out the role assigned to him or her in the best possible manner, he or she

should have clear definite written or mental objectives. Formulating the behavioral objectives is considered as a major and significant link in the chain of lesson planning procedures and an indispensable element in the teacher's success in giving his or her lesson inside the classroom.(AL-Khawaldeh, 2006) referred to the fact that tenth grade English language teachers were not interested in formulating the objectives and identifying the evaluative means, time allocations and home works distribution; in addition to lesson personal evaluation and the gap between theoretical plans and their implementation inside the classroom.

These assumptions led the researchers to conduct this study to originate this in a descriptive and analytical manner to shed light on the levels of behavioral objectives which are formulated by EFL tenth grade teachers in their lesson plans according to Blooms' taxonomy of the cognitive behavioral objectives, Bloom's and Krathwohl 's taxonomy of the affective behavioral objectives ,and Simpson's taxonomy of the psychomotor taxonomy, and the preferred formulated domains of the behavioral objectives in EFL tenth grade teachers' lesson plans according to their academic qualifications and teaching experience .were not documented in the literature of the Directorate of Education in Al-Qaser Province .

Significance of the Study

The significance of this study lies in the fact that it accounts the aspects that were not tackled by the studies that address the educational objectives issue (AL-Kandari ,2006 and AL-Mouaiqel, 2004);in general and the behavioral objectives; in particular, in the Directorate of Education in Al-Qaser. This study comes in response to all recommendations and suggestions included in the previous educational studies (AL-Khawaldeh, 2006 and Kabbadh, 2007) recommended conducting more researches in the field of educational objectives. This study is looking into the levels of stating the behavioral objectives of teaching English language for the tenth grade in the Directorate of Education in Al-Qaser Province. This study is expected to help EFL supervisors and teachers to grip with the strength and weakness of the existing lesson plans. On the basis of this, they can be more aware of the level of behavioral objectives in EFL tenth grade teachers' lesson plans to be taken into consideration when training EFL teachers in both pre-service or in-service educational programmes.

Purpose of the Study

This study aims to achieve the following purposes: investigating the level of behavioral objectives that are formulated by EFL tenth grade teachers in their lesson plans according to Bloom's ,Krathwohl's, and Simpson's taxonomy of behavioral objectives in Jordanian public schools in AL-Qaser Directorate of Education, investigating the effect of EFL tenth grade teachers' experiences on the level of stating behavioral objectives in their lesson plans, investigating the effect of EFL tenth grade teachers' academic qualifications on the level of stating behavioral objectives in their lesson plans ,and determining the preferred formulated domain of the behavioral objectives in EFL tenth grade teachers' lesson plans according to their qualification and teaching experience .

Questions of the Study

This study attempts to answer the following questions:

1. How are the behavioral objectives distributed in the formulated EFL tenth grade teachers' lesson plans according to Bloom's, Krathwohl's, and Simpson's taxonomy of behavioral objectives in Jordanian public schools in AL-Qaser Directorate of Education?
2. Are there any statistically significant differences in the percentages of the distribution of the formulated behavioral objectives in EFL tenth grade teachers' lesson plans ($\alpha \leq 0.05$) attributed to teachers' experience?
3. Are there any statistically significant differences in the percentages of the distribution of the formulated behavioral objectives in EFL tenth grade teachers' lesson plans ($\alpha \leq 0.05$) attributed to teachers' qualifications?
4. What are the domains of the behavioral objectives that EFL tenth grade teachers prefer to formulate in their daily lesson plans according to their qualifications and teaching experience?

Definition of Operational Terms

For the purpose of this study, the researchers adopt the following definitions of terms:

Behavioral Objectives
A description of a performance the teacher wants learners to be able to exhibit, an intended result of instruction, rather than the process of instruction itself. The behavioral objective should meet the following criteria such as the condition for learning, measurable and observable behaviors and the minimal level of performance required (Mager, 1975). Behavioral objectives which are investigated in this study are the specific, measurable, short-term, observable student behaviors, which are formulated by EFL tenth grade teachers in their lesson plans according to Bloom's , Krathwohl's, and Simpson's taxonomy of behavioral objectives that analyzed by the table of classifying the behavioral objectives into domains and levels of the domain.

Bloom's taxonomy
A classification was developed in (1956) by Benjamin Bloom of levels of intellectual behavior in learning. This taxonomy contained overlapping domains: the cognitive, the affective, and the psychomotor which was developed by (Simpson, 1972).In this study, Bloom's taxonomy is a tool to analyze the objectives that are formulated by tenth grade EFL teachers in their lesson plans according to the Cognitive, psychomotor, and affective domains of knowledge

Cognitive domain
The cognitive domain involves knowledge and the development of intellectual skills. This includes recalling or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills (Bloom, 1956). The

cognitive domain which is investigated in this study is the behavioral objectives which its purpose is the intellectual learning and problem solving. Cognitive levels of learning include: remembering, understanding, applying, analyzing, creating, and evaluating, that are formulated by EFL tenth grade teachers in their lesson plans.

Affective domain

The affective domain includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. (Krathwohl, Bloom, and Masia, 1973)**.** The affective domain which is investigated in this study is the behavioral objectives which aim to change attitudes/behavior rather than to transmit/process information that are formulated by EFL tenth grade teachers in their lesson plans.

Psychomotor domain

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution (Simpson, 1972). The psychomotor domain which is investigated in this study is the behavioral objectives have cognitive/affective elements, which focus on the motor skill development that are formulated by EFL tenth grade teachers in their lesson plans.

Tenth grade

It is the highest class of the basic stage. The students are about sixteen years old. They have spent ten years studying English language according to the regulations of the Ministry of Education in Jordan.

Lesson plan

It is a systematic and elastic guide of the teaching- learning process that includes behavioral objectives, strategies, tools, evaluation, and time AL-Khataybeh (2002). The lesson plans which are investigated in this study are daily planning notebooks that EFL teachers formulated their behavioral objectives to tenth grade students in AL-Qaser directorate of education during the second semester 2008/2009.

Limitations of the study

This study is limited to the following:

1. The analyzed behavioral objectives that are formulated in the lesson plans according to Bloom's, Krathwohl's, and Simpson's taxonomy.
2. All EFL tenth grade male and female teachers in public schools in AL-Qaser Directorate of Education during the second semester 2008/ 2009.

Theoretical framework

Setting the objectives constitutes a major step in designing, implementing and evaluating the educational programs (AL-Harbi, 2000). The general objectives are formulated in a

way that identifies what the students should learn during their comprehensive study of an educational program (Abu-Hola and AL-Momani, 2000).The general goals of teaching English language can be formulated to help the learners acquiring the mental and scientific facts, concepts and skills; besides help the learners to develop the directions, values, interests and tendencies in a functional manner, which can be achieved on the long run. As for the educational objectives, they are short-term objectives that identify what the learner should learn from studying a certain unit or curriculum. Formulating the educational objectives at this level shall be more specific and definite. The behavioral objectives; on the other hand, specify what the learner should learn from studying a certain subject or lesson; they are short-term objectives that are formulated in a clear and definite behavioral manner that can be noticed and measurable. They can be expressed by a statement that reflects the behavior or performance the learner should show after going through the educational experience.

Some educators are against using the behavioral objectives based on the pretext that some education's general objectives cannot be measured (Rayan, 1986). They also claim that these objectives emphasize on the direct educational outcomes; ignoring the indirect long-term ones (Al-Huwaidi, 2005). They also see that teachers can still be successful in their career without preparing their lessons in advance. In their opinion, the effort exerted by the teacher is just useless (Faraj, AL-Mihi, salameh, and AL-Shatti 2003).

So, there is nothing wrong with the behavioral objectives themselves; yet, the problem lies in the negative tendency of some teachers towards not putting these objectives into practice. Some studies (AL-Baqmi, 2001), (Umoren and Ogong, 2006) revealed the existence of some significant differences in achieving teaching objectives; in favor of those using the behavioral objectives in their teaching. Many studies proved the effectiveness of providing the students with these objectives in their academic achievements; compared with their peers who were not provided with these objectives (AL-Sharqawi, 1996).

Professionals worked hard to classify the behavioral objectives; so that they dealt with the three main domains of behavioral objectives, each one of them is divided into different levels of complexity: Bloom's taxonomy of the cognitive domain, Krathwohl's taxonomy of the affective domain, and Simpson's taxonomy of the psychomotor domain (Aboderin and Thomas, 1996).

The cognitive domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills there are six major categories, starting from the simplest behavior to the most complex:

1. Remembering: Retrieving, recognizing, and recalling relevant knowledge from long-term memory.
2. Understanding: Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.

3. Applying: Carrying out or using a procedure through executing, or implementing.
4. Analyzing: Breaking material into constituent parts, determining how the parts relate to one another.
5. Evaluating: Making judgments based on criteria and standards through checking and critiquing.
6. Creating: Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. (Anderson and Krathwohl, 2001).

Krathwohl, Bloom and Masia (1973) mentioned that the affective domain includes the manner in which dealing with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories are:

1. Receiving Phenomena: Awareness, willingness to hear, selected attention.
2. Responding to Phenomena: Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).
3. Valuing: The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.
4. Organizing: Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values.
5. Internalizing values (characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The seven major categories are listed from the simplest behavior to the most complex:

1. Perception: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.
2. Set: Readiness to act which includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).
3. Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.
4. Mechanism: This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.

5. Complex Overt Response: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance.
6. Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.
7. Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills. (Simpson, 1972).

The lesson is a period of teaching–learning process in a limited time to achieve the previous prepared cognitive, affective, and psychomotor objectives. Preparing lesson plan is the most important task in teaching (AL-Khataybeh, 2002). The lesson Plan is defined as teacher's own guide to handle the teaching-learning process under the given circumstances effectively, which are tactic to each individual teacher. It includes: basic information: subject, title, class, date, total number of sessions, and time estimate of the unit and the lessons. Resources: instructional and illustrative materials, and listing the community resources. Purposes of lessons: listing general and specific objectives for the unit in lesson plans, and use of behavioral terms in the statement of objectives. Introduction to the lesson: preview as well as review, using of pre-test lesson for testing the previous knowledge, and using of story, discrepant events demonstration and problematic (Taimeh, 2000).

Development of the lesson: steps in development, major activities, other brief activities, developing questions, trying to meet individual needs, and application. Closure: testing questions, self evaluation and, references (Taimeh, 2000).Lesson planning enables the teacher to present material in a more logical, systematic, and effective way. Keep the developmental level of those who we plan to teach in mind. To obtain adequate samples of the subject matter to be thought and the instructional objectives to be achieved. Save more time, effort, and even money. To ensure better instruction especially in the first class session. This avoids frustrating and embarrassing situations. Reveal teacher's personality. Provide teachers with a better opportunity to try out his / her ideas. Foster self confidence, persistence, security, and individual pride in one's work. This further reduces fatigue, fear and even stress (Abu-Holaand AL-Momani, 2000).

For most teachers, learning objectives is central to all lesson plans that refer to descriptions of observable student behavior or performance that are used to make judgments about learning - the ultimate aim of all teaching. A well constructed learning objective describes an intended learning outcome and contains three parts, each of which alone means nothing:

1. The conditions that is a statement that describes the conditions under which the behavior is to be performed,
2. A verb that is an action word that connotes an observable student behavior. There are nonfunctional verbs that cannot be measured or are redundant, they should be avoided when writing objectives: able to, shows interest in, appreciate for, knows,

aware of, has knowledge of, capable of learns, comprehends, memorizes conscious of, understands, familiar with, and will be able to.

3. The degree (criteria) that is a statement that specifies how well the student must perform the behavior. If any one of these three components is missing, the objective cannot be achieved accurately.

The behavioral objectives are the focal point of a lesson plan. They are a description of an intended learning outcome and are the basis for the rest of the lesson. They provide criteria for constructing an assessment for the lesson, as well as, for the instructional procedures the teacher designs to implement the lesson. The behavioral objectives determine the criteria for any assessment rubric.

Without an objective that clearly communicates specific student behavior or performance, it is difficult, if not impossible to determine exactly what a particular lesson is supposed to accomplish (Kizlik ,2007).The behavioral objectives help the teacher to become more precise in his/her teaching. Clarify exactly what is expected. The teacher plans more carefully because he or she knows what performance his or her students should display after finishing a lesson, or a unit. The teacher knows what materials are needed and is able to give more specific help to students in directing them to outside sources of information. To write the behavioral Objectives teacher should focus on student Performance not teacher performance, focus on product - not process , focus on terminal behavior - not subject matter ,include only one general learning outcome in each objective (Abu-HolaandAL-Momani, 2000).

Review of Related Literature

AL-Sha'wan andAL-Jaber (1989) conducted a study analyzing the behavioral objectives in 120 lesson plans of social studies at the basic and intermediate stage in the Kingdom of Saudia Arabia. The results of the study showed that the behavioral objectives in the curricula of the educational ministry weren't inclusive, not formulated in a general way, some of teachers couldn't distinguish between the general and specific objectives, and some of lesson plans didn't have any objectives.

AL-Baqmi (2001) conducted a study analyzing the behavioral objectives stated by biology teachers of the secondary stage, and the levels of objectives. The sample comprised of (40) teachers in AL-Taief in the kingdom of Saudia Arabia. The results of the study showed that the behavioral objectives stated by biology teachers of the secondary stage was good (70.15%), biology teacher's knowledge of the domains of objectives was good (78.12%), the levels of objectives was good (75.5%), and using of the behavioral objectives was very good (84.25%).

AL-Mouaiqel (2004) conducted a study at analyzing the behavioral objectives that are formulated by teachers of Islamic sciences and Arabic language in their lesson plans in the secondary stage in Riyadh into their domains, levels and the errors in formulating them. The researcher analyzed 100 lesson plans. The study revealed that the behavioral objectives emphasized on the cognitive domain, after analyzing them the cognitive

objectives emphasizing on the lower thinking levels (remembering, understanding, and applying). And there were some errors in formulating objectives.

AL-Kandari (2006) conducted a study aimed at analyzing the behavioral objectives in Science teacher's daily preparation lesson plan notebook in the state of Kuwait, 3489 behavioral objectives derived from 506 lesson plans. The study also considered the effects of gender and teaching grade (elementary, intermediate, secondary schools). The results of the study showed cognitive objectives have a very high frequency (91.22%) among the behavioral objectives in science teachers' daily lesson plan, and this is true for all level grades, regardless of teachers' gender.

AL-Khawaldeh (2006) investigated EFL tenth grade teachers' lesson plans in terms of the appropriateness of instructional objectives, instructional methods and procedures, evaluation methods, time distribution, assignments and notes. The sample of the study consisted of 101 EFL tenth grade teachers' lesson plans. The researcher developed two evaluative techniques: a checklist for analyzing EFL tenth grade teachers' lesson plans and a number of interviews conducted with 60 EFL tenth teachers. The findings of this study revealed that EFL tenth grade teachers were interested in setting their methods of teaching, procedures and activities though they did not state them appropriately. The results also revealed that they were less concerned about setting other components. The findings did not show any statistical differences between experienced and less experienced EFL tenth grade teachers regarding the appropriateness of their lesson plans. Interviews with 60 EFL tenth grade teachers revealed that the problems that they faced when planning for their lessons were the lack of time, resources and collaboration among EFL teachers, considering individual differences, stating instructional objectives, activities and evaluation methods, gap between the lesson plans and their implementations in the classroom.

Kabbadh (2007) conducted a study analyzing the behavioral objectives in Islamic religion, Arabic language, Maths, and Science lesson plans of teachers at Mekkah AL-Mukaramah schools .Frequencies, means, percentage and T.Test were used in analyzing the research data. The result of the study showed that teachers in Mekkah give more attention to the behavioral objectives during preparing their lesson plans, (29.5%) of the study sample couldn't differentiate between the general and the specific objectives, (90.9%) of the objectives were in the cognitive domain, (50%) of the behavioral objectives were at the memorization level, (10%-23%) of the objectives included different formulating mistakes. The qualification wasn't an effective variable as of formulating the objectives at four levels, and the grade taught was not an effective variable for objectives at three levels.

Design and Methodology

Population of the study

The population of the study consists of all EFL tenth grade teachers who were (24) male and female according to the statistics of AL-Qaser Directorate of Education, (203) sheets of lesson plan imply (586) behavioral objectives while the statistical mean of the

behavioral objectives was (2) for "module four" in Jordanian Opportunities curriculum all of which was written in the second semester 2008/2009 in Jordanian public schools in AL-Qaser Directorate of Education.

Sample of the study

The sample of the study and the population of the study are the same along with the lesson plans sample of teachers consists of 24 male and female EFL teachers and sample of (586)behavioral objectives .

Instruments of the study

For the purpose of the study, the researchers used two analytical instruments which included a checklist for analyzing the behavioral objectives of the participant EFL tenth grade teachers' lesson plans according to Bloom's, Krathwohl's, and Simpson's taxonomy of the behavioral objectives consists of three domains the cognitive domain includes six levels, the affective domain consists of five levels, and the psychomotor domain includes seven levels (Appendix III)and entries of frequencies and percentages. The second instrument was a set of interviews consisted of one open-ended question (Appendix I) about the preferred domain that EFL tenth grade teachers formulated in their lesson planning process according to their academic qualifications and teaching experience.

Procedures of the study

1. After the researchers had the permission of Mut'ah University and its approval to the Ministry of Education to conduct this study, the researcher consulted AL-Qaser Directorate of Education to provide her with the EFL tenth grade teachers and their schools' names and locations.
2. The researcher collected the participants' lesson plans to analyze the behavioral objectives by the checklist formulated on the basis of Bloom's, Krathwohl's, and Simpson's taxonomy of behavioral objectives.
3. Each lesson plan that consisted of behavioral objectives was analyzed according to the checklist formulated on the basis of Bloom's, Krathwohl's, and Simpson's taxonomy of behavioral objectives, and researcher with the co-analyst analyzed the behavioral objectives stated by EFL tenth grade teachers. Each lesson plan was analyzed according to the content analysis checklist by taking each behavioral objective and classified it to the suitable domain and level of the behavioral objectives and writes the frequencies to find the percentages of each one.
4. The researcher conducted (24) interviews with all EFL tenth grade teachers by asking them about the preferred formulated domain of the behavioral objectives according to their academic qualifications and teaching experience .and writing their answers in the interview model, the average length of the interview was about 10 minutes.

Validity

The researchers analyzed the content of the checklist of the behavioral objectives in the lesson plans twice by a period of one week Pearson correlation coefficient for the two analysts was calculated to be (0.83) between the two analysis which was considered

suitable and sufficient for conducting this study. As for the validity of the interview's question, a group of specialized EFL professors, EFL supervisors, and EFL teachers. After reading the returned forms of the interview their comments were taken into consideration when coming up with the interview's question EFL supervisors and EFL teachers established the validity of the interviews.

Reliability

The reliability of the instruments was ensured by co-analysis of the behavioral objectives of the participants' lesson plans. The researcher and the experienced English language supervisors did an analysis of some lesson plans to ensure agreement between them in the analysis process by the calculated Hollesty between the researcher and the co-analysis which was accordingly 82% and 86% .To ensure the reliability of the interviews some of the interviews summarized and sent back to the interviewees in order to ensure that their comments will be taken into consideration.

Statistical analyses

To accomplish the purpose of the study, and to answer the questions of the study , Percentages and frequencies and chi-square test (χ^2) were used.

Findings and Discussions

Findings related to the first question: "How the behavioral objectives are distributed in the formulated EFL tenth grade teachers' lesson plans according to Bloom's, Krathwohl's, and Simpson's taxonomy of behavioral objectives in Jordanian public schools in AL-Qaser Directorate of Education?" Frequencies and percentages were calculated and presented in table (1).

Table 1 Frequencies and percentages of the formulated behavioral objectives

The domains	Frequencies	Percentages
Cognitive	223	38.05 %
Affective	281	47.95 %
Psychomotor	82	13.99 %
Total	586	100 %

Table (2) frequencies and percentages were calculated and presented in the checklist of the levels of the domains of the behavioral objectives.

The findings related to this question revealed that the affective objectives got the highest percentage (47.95%) in the analysis of the behavioral objective that EFL tenth grade teachers formulated in their lesson plans, after that comes the percentage of the cognitive objectives finally; the psychomotor objectives got the lowest percentage. These results could be attributed to the teachers' concentration on creating a warm friendly atmosphere in their classrooms, creating a social interaction between students and their teachers as well as among the learners themselves and the learners and surroundings. The role of collage of education shifted from the teacher centered to students centered that most of teachers are recently appointed teachers who transmitted and applied what they have

learnt in their university studies in their teaching-learning process and the role of the Ministry of Education in developing the recently appointed teachers by the training

Table 2 The checklist of the levels of the domains of the behavioral objectives

Domains and levels of objectives	Frequencies	Percentages
Cognitive domain		
To remember	35	15.69%
To understand	33	14.8%
To apply	38	17.04%
To analyze	55	24.66%
To evaluate	32	14.34%
To create	30	13.45%
Affective domain		
To receive	27	9.61%
To respond	51	18.14%
To value	98	34,87%
To organize	26	9.25%
To internalize	79	28.11%
Psychomotor domain		
To percept	8	9.75%
To set	11	13.41%
To guide response	14	17.07%
To do skill normally	25	30.48%
To do skill professionally	5	6.1%
To adapt	10	12.2%
To originate	9	10.97%

courses on how to teach, and formulating the objectives. These results were not consistent with findings of AL-Rajeh (1992) and AL-Mouaiqel (2004), who found that the teachers concentrated on the cognitive objectives and ignoring the affective and psychomotor objectives.

Findings related to the second question:"Are there any statistically significant differences in the percentages of the distribution of the formulated behavioral objectives in EFL tenth grade teachers' lesson plans ($\alpha \leq 0.05$) attributed to teachers' experience?"

To answer this question, percentages and frequencies were calculated and presented in table (3).

Table 3 Frequencies and percentages of the behavioral objectives domain according to teachers' experience

The behavioral objectives domain	Teachers' Experience						Total	
	4 and less		5-8		more than 8			
	f	P %	f	P %	f	P %	f	P %
Cognitive domain	86	38.56	96	43.05	41	18.38	223	38.05
Affective domain	135	48.04	88	31.31	58	20.64	281	47.95
Psychomotor domain	47	57.03	31	37.80	4	4.87	82	13.99
Total	268	45.73	215	36.66	103	17.57	586	100

Table (4) frequencies and percentages were calculated and presented in the checklist of the levels of the domainsof the behavioral objectives according to teachers' experience**.**

Table 4 The checklist of the levels of behavioral objectives domain according to teachers' experience

The behavioral objectives	Teachers' Experience						Total	
	4 and less		5-8		More than 8			
	f	P %	f	P %	f	P %	f	P %
Cognitive domain								
To remember	18	20.93	11	11.45	6	14.63	35	15.69
To understand	15	17.44	12	12.5	6	14.63	33	14.79
To apply	11	12.79	22	22.91	6	14.63	38	17.04
To analyze	22	25.58	22	22.91	10	24.39	55	24.66
To evaluate	12	13.95	12	12.5	8	19.51	32	14.34
To create	8	9.30	17	17.71	5	12.2	30	13.45
Affective domain								
To receive	10	7.40	7	7.95	10	17.24	27	9.60
To respond	29	21.48	12	13.63	10	17.24	51	18.14
To value	34	25.18	39	44.31	25	43.10	98	34.87
To organize	18	13.33	6	6.81	2	3.44	26	9.25
To internalize	44	32.59	24	27.3	11	18.96	79	28.11
Psychomotor domain								
To percept	4	8.51	4	12.9	0	0	8	9.75
To set	7	14.9	4	12.9	0	0	11	13.41
To guide response	6	12.8	7	22.58	1	25	14	17.07
To do skill normally	18	38.3	5	16.13	2	50	25	30.48
To do skill professionally	4	8.51	1	3.22	0	0	5	6.1
To adapt	5	10.6	5	16.13	0	0	10	12.2
To originate	3	6.38	5	16.13	1	25	9	10.97
Total	268	45.73	215	36.66	103	17.57	586	100

Table (5) indicates that there were statistically significant differences in the formulated behavioral objectives due to teachers' experiences. Chi-square value was 19.43, the degree of frequencies was 4; the significance level was (0.001).The findings related to

Table 5 Chi-Square of the behavioral objectives with teachers' experience variable

Chi-Square value	Degree of frequencies	Significance level	The result
19.43	4	.001	*

*= α=0.001

this question indicated that the teachers with (4 and less) experience had got the highest percentage which was (45.73%),after that the teachers with (5-8)experience had got percentage which was (36.66%),finally the teachers with (more than 8) experience had got percentage which was (17.57%)that attributed to training the recently appointed teachers on formulating the behavioral objectives who were the most of the sample and their motivations are more than the teachers who have many years in experience. Also, they are trying to apply what they had learnt during their university study. Recently appointed teachers are more patient in writing the behavioral objectives in their lesson plans than those who have many years in experience. Also, the teachers who have many years in experience try most of their time to formulate their lesson plans mentally AL-Khawaldeh (2006). The teachers of many years in experience emphasized on the cognitive domain without developing themselves that is consistent with findings brought by AL-Rajeh (1992), AL-Mouaiqel (2004).

Findings related to the third question:" Are there any statistically significant differences in the percentages of the distribution of the formulated behavioral objectives in EFL tenth grade teachers' lesson plans (α≤0.05) attributed to teachers' academic qualifications?"

To answer this question, frequencies and percentages of the levels of the behavioral objectives according to teachers' academic qualifications were calculated and presented in table (6).

Table 6 Frequencies and percentages of the levels of the behavioral objectives according to teachers' academic qualifications

The behavioral objectives	Teachers' academic qualifications				Total	
	B.A		M.A			
	f	P%	f	P%	f	P%
Cognitive domain	196	87.89	27	12.10	223	38.o5
Affective domain	252	89.76	29	10.32	281	47.95
Psychomotor Domain	67	81.70	15	18.29	82	13.99
Total	524	89.41	62	10.58	586	100

Table (7) frequencies and percentages were calculated and presented in the checklist of the levels of the domains of the behavioral objectives according to teachers' academic qualifications variable.

Table 7 The checklist of the behavioral objectives according to teachers' academic qualifications

The behavioral objectives	Teachers' academic qualifications				Total	
	B.A		M.A			
	f	P%	f	P%	f	P%
Cognitive domain						
To remember	35	17.85	0	0	35	15.69
To understand	26	13.26	7	25.92	33	14.79
To apply	33	16.83	6	22.22	38	17.04
To analyze	50	25.51	4	14.81	55	24.66
To evaluate	29	14.8	3	11.11	32	14.34
To create	23	11.73	7	25.92	30	13.45
Affective domain						
To receive	27	10.71	0	0	27	9.60
To respond	44	17.46	7	24.13	51	18.14
To value	89	35.31	9	31.03	98	34.87
To organize	26	10.31	0	0	26	9.25
To internalize	66	26.19	13	44.82	79	28.11
Psychomotor domain						
To percept	7	10.44	1	6.66	8	9.75
To set	11	16.41	4	26.7	15	13.41
To guide response	12	17.91	2	13.33	14	17.07
To do skill normally	24	35.82	1	6.66	25	30.48
To do skill professionally	4	5.97	1	6.66	5	6.09
To adapt	9	13.43	1	6.66	10	12.19
To originate	0	0	5	33.33	5	10.97
Total	524	89.41	62	10.58	586	100

Table 8 Chi-square of the behavioral objectives with teachers' academic qualifications variable

Chi-square value	Degree of frequencies	Significance level	The result
3.789	2	.150	

The table (8) shows that there were no statistically significant differences between the formulated of the behavioral objectives due to academic qualification. Chi-square value was (3.789), the degree of frequencies was 2; the significance level was (0.150). The findings related to this question showed that the teachers of B.A. holders had got the

highest percentage which was (89.41%), and then the teachers of M.A. holders had got percentage which was (10.58%). Teachers of M.A. holders were four teachers in this study and two of them were still in M.A programme and not in English language specialization and the rest two were in linguistics or in the literature of English language not in methods of teaching English language they didn't take specialized courses in methodology while the teachers of B.A. holders were twenty teachers.

Findings related to the fourth question: "What are the domains of the behavioral objectives that EFL tenth grade teachers to formulate in their daily lesson plans according to their academic qualifications and teaching experience?"

To answer this question, interviews were conducted with (24) EFL tenth grade teachers to investigate the preferred formulated domain of the behavioral objectives in their daily lesson plans according to their academic qualifications and teaching experience. Table (9) shows the percentages of the preferred formulated domain of the behavioral objectives in their lesson plans according to their academic qualifications and teaching experience.

Table 9 The percentages of the preferred formulated domains of the behavioral Objectives in EFL tenth grade teachers lesson plans according to their academic qualifications and teaching experience.

No.	The domains of the behavioral objectives	Percentage
1.	The affective domain	55 %
2.	The cognitive domain	35 %
3.	The psychomotor domain	10 %

The findings related to the fourth question highlighted that most of EFL tenth grade teachers preferred to formulate the affective objectives in their lesson plans which was the highest percentage that is attributed to the willingness of teachers to create a friendly atmosphere with their students and to improve and guide their feelings, values ,appreciation ,motivations ,enthusiasms and attitudes. This result is consistent with findings of the analyzed content analysis in the checklist that the affective domain got the highest percentages of the formulated behavioral objectives in EFL teachers' lesson plans .The cognitive objectives got (35%) and the psychomotor (10%) that is attributed to EFL tenth grade teachers tendencies to emphasize on the affective objectives according to their supervisors' convections which appeared in their interviews not to emphasize on the cognitive domain (Appendix I).

Recommendations

In light of the results of the study, the researchers proposed the following recommendations.

1. Holding training courses and workshops to train teachers with varied teaching experience and academic qualifications on formulating the behavioral objectives effectively and to reveal the causes of not achieved behavioral objectives in the cognitive and psychomotor.
2. More assessing supervisors' subsequent on the formulated behavioral objectives in the lesson plans by EFL teachers; especially the teachers who had many years in teaching experience.
3. Retraining EFL teachers with varied academic qualifications on the strategies of formulating the behavioral objectives by using the domains and their levels to enhance their lesson planning practices and provide teachers of up-date in formulating the behavioral objectives.
4. Similar studies ought to conduct to investigate other areas such as an analysis of the content of EFL teachers' notes on formulating the behavioral objectives and the relationship between the written behavioral objectives and the actual implementation of them. Such studies may shed more light on the behavioral objectives in other Directorates of Education in Jordan.

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Approaches to Learning of Social Studies in Jordan

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Abstract

The purpose of this study was to investigate the learning preferences of social studies university students as measured by Kolb's Learning preference inventory. The sample of the study comprised of 221 undergraduate students at one major public university located in the middle part of Jordan. The results indicated that subjects were predominantly assimilators. Based on chi-square tests, differences in learning preferences were not found for gender, educational level, and specialty area. Finally, implications for practice are provided for university faculty members.

Keywords: Learning preferences, social studies, university students, Jordan

Introduction and Theoretical Framework

Efforts to improve the quality of higher education have been increasing due to reform initiatives and new approaches to teaching and learning. Institutions of higher education are now held accountable to a number of stakeholders including parents, legislators, and private and public organizations. As a result, faculty members are now expected to transform methods of teaching which take into account the individual needs of their students (Schoem, 2002; Tagg, 2003).

Colleges and universities have recently recognized that there are different learning preferences among students (Malinen, 2000). A learning preference is the general tendency toward a particular approach of perceiving and processing information displayed by an individual (Robotham, 1999). Each student's learning preference is unique and may not be identical to any other learning preference (Fritz, 2002). According to Matthew (1995), learning preference is extremely important to consider in improving

curricula and instruction in higher education. By allowing students to learn in an environment that corresponds with their learning preference, students may exhibit better performance (Loo, 2002; Rosenfield & Rosenfield, 2003). Thus, it is the responsibility of the educational system to presents facts, concepts, and information in a variety of ways so that all students can have the opportunity to maximize their learning potential (Serasin, 1999).

Research on learning preferences in the classroom can help faculty members gain insights about students learning preferences and how these preferences influence learning (Silver & Hanson, 1995). This issue has raised concerns in higher education that there is a need to increase research on learning preferences of university students (Plater, 1995). Kolb's (1985) model of learning is recognized as one of the prominent and widely used tool for assessing students' learning preferences. The model assumes four learning styles among people in a given learning situation. These styles are divergers, assimilators, convergers, and accommodators.

Divergers perceive information concretely and process it reflectively. They are called imaginative learners because they integrate experiences with the self and need to be personally engaged in the learning process. Assimilators perceive information abstractly and process it actively. They prefer working with ideas than working with people and are strong in situations call for the development of theoretical models. Convergers perceive information abstractly and process it reflectively. They focus on the practical application of ideas and tend to be unemotional, have narrow interests and prefer things over people. Finally, accommodators perceive information concretely and process it actively. They are innovative learners who like to take risks, work through trial and error, and have the ability to adapt to change.

In examining previous research, Elfant (2002) contended that the majority of research conducted on learning preferences related to Kolb's model has been focused primarily on elementary and secondary education students. Only few studies examined students' learning preference in higher education settings. Moreover, there has been little research on learning preference in higher education settings (Boyer, 2001). Therefore, there is a need for additional research on this subject matter.

Purpose of the Study

The primary purpose of this study was to extend previous research by assessing the learning preferences of one university students located in the middle part of Jordan. The following research questions were formulated for the study:

1. What are the learning preferences of the social studies university students?
2. Do learning preference of the Hashemite University students vary based on differences in gender and educational level (freshman, sophomore, junior, and senior)?

Significance of the Problem

Universities are always looking for new ways to improve their teaching and learning practices. Teaching has always served as an important role to achieve institutional goals of effectiveness and improved students' learning. However, students learn in different ways and are influenced by individual preferences for certain approaches of perceiving and processing information. The benefits from understanding students' learning preferences may offer help to meet the diverse needs of students. Results of this study have important implications for faculty members. By understanding their students learning preferences, faculty members can use such information to design effective teaching strategies. With faculties knowing their students' learning preference, they will be better prepared to help students achieve success. Therefore, this study may help in seeking feasible approaches to help faculties and students find the most effective ways of teaching and learning.

Methodology

Participants

The participants for this study were all university students who are enrolled in the social studies class for the first and second terms of the academic year 2008/2009. A total of 221 students completed the survey. The resulting sample included 81 males (36.7%) and 140 females (63.3%). There were 87 freshman (39.4%), 58 sophomore (26.2%), 46 juniors (20.8%), and 30 seniors (13.6%).

Instrumentation

Kolb's Inventory (LSI) (Kolb, 1985) was used to assess students' learning preferences. The LSI is a self-report measure containing 12 items in which respondents describe their learning style preferences. Each item asked participants to rank order four sentence endings that correspond to a four learning modes: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). Respondents were asked to rank these sentences on the following scale: 1 (least like you), 2 (third most like you), 3(second most like you), 4 (most like you). The LSI is scored by adding up the scores in each of the four columns to produce the scores for each of the learning modes (CE, RO, AC, and AE). Therefore, raw scores for each mode range from 12 to 48. The four raw scores are then combined to form the two learning dimensions: perception (AC-CE) and processing (AE-RO). These two dimensional scores are then placed on a learning preference grid. Depending on the magnitude of the scores, the individual is categorized within one of the four quadrants that represent an individual's preferred learning preference as diverger, assimilator, converger or accommodator. In the present study, the researcher manually categorized and classified each respondent learning preference based on their scores and the Grid chart. An SPSS coding of 1 was given to the diverger learning preference, a code of 2 was given to the assimilator learning preference, a coding of 3 was given to the converger learning preference, and a code of 4 was given to the accommodator learning preference.

Validity and Reliability

The reliability and validity of the LSI (Kolb, 1985) is well-documented in the literature. In a study by Marshall and Merritt (1985) the LSI was administered to 543 college students from randomly selected classes at two universities and thirty-seven different majors were represented. The internal consistency reliabilities based on alpha coefficient ranged from .78 to .88. In similar study by Geiger, Boyle, and Pinto (1993), reliabilities ranged from .85 to .88. Finally, Willcoxson and Prosser (1996) investigated 187 Arts and Science students in an Australian university using the responses to the Kolb's (1985) Learning Style Inventory. The results obtained in this study of the reliability and validity of Kolb's (1985) LSI indicate a high degree of reliability, with coefficient alpha reliabilities ranging from .81 to .87 and a high degree of validity which demonstrate different discipline-based learning preferences parallel to those found for the Kolb LSI. Therefore, it is well-documented that the LSI is a valid and reliable instrument for research purposes.

Translation Process

One translator (faculty member) bilingual in English and Arabic translated the English version of the LSI into Arabic (forward translation). When the Arabic translation was finalized, the instrument was then back-translated (from Arabic to English) by another faculty member, bilingual in English and Arabic. The back-translated items were then evaluated by a group of three faculties to ensure that the item meanings were equivalent in both the original English versions and the back-translated version. If differences in meaning were found between items, those items were put through the forward and back-translation process again until the faculties were satisfied there was substantial meaning equivalence. The Arabic version of the LSI was then pilot tested with a group of 8 students and 4 faculties to collect feedback about instrument content and usage. The feedback from the students did not lead to any substantive changes. The feedback from the faculties emphasized that the instrument has both face and content validity.

Data Collection

The translated LSI was administered to students during regular class periods toward the end of the semesters. The students received written instructions that specified the purpose of the study and explained the procedures to be followed in responding to the items. They were told that there were no right or wrong responses but only statements with which they can identify themselves. The researcher collected the surveys during class meetings. The questionnaire included a brief demographic sheet that asked students to provide basic demographic information (e.g., gender and educational level).

Results

Approaches to Learning

Descriptive statistics were used to profile the overall learning preferences of the Hashemite University social studies students. Table (1) show that the dominant learning styles that emerged in the entire population where the assimilator followed by the converger. The least frequent style was that of accommodator.

Table (1) Distribution of Learning Styles

Learning Styles	N	%
Assimilators	78	35.3
Convergers	68	30.8
Divergers	48	21.7
Accommodators	27	12.2
Total	221	100.0

Variations by Gender

A chi-square test of independence was used to compare if there were differences in learning preferences among students based on differences in gender. The chi-square statistic was 2.83 with a significance level of .42, concluding that there were no significant differences between students' learning preferences based on differences in gender (Tables 2, 3). In other words, there is insufficient evidence to conclude that there is any evidence that there is a relationship between the learning preferences of students and gender.

Table (2) Distribution of Learning preferences by Gender

Learning Styles	Male		Female	
	N	%	N	%
Assimilators	28	34.6	50	35.7
Convergers	30	37.0	38	27.1
Divergers	15	18.5	33	23.6
Accommodators	8	9.9	19	13.6
Total	81	100.0	140	100.0

Table (3) Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.828	3	.419

Likelihood Ratio	2.822	3	.420
Linear-by-Linear Association	.324	1	.569
N of Valid Cases	221		

Note. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.90

Variations by Educational Level

A chi-square test of independence was performed to compare students' learning preference based on differences in educational level. The significance level (0.08) of the chi-square statistic (55.86) was less than the stated alpha. Therefore, we conclude that there is no significant difference between students' learning preference based on differences in educational level (Tables 4 and 5).

Table 4 Distribution of Learning Preferences by Educational Level

	Freshman		Sophomore		Junior		Senior		Total	
Learning Styles	N	%	N	%	N	%	N	%	N	%
Assimilators	33	37.9	24	41.4	16	34.8	5	16.7	78	35.3
Convergers			20	34.5						
Divergers	29	33.3			16	34.8	3	10.0	68	30.8
Accommodators			7	12.1						
	12	13.8			7	15.2	22	73.3	48	21.7
			7	12.1						
	13	14.9			7	15.2	0	0.0	27	12.2

Table (5) Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	55.855	9	.08
Likelihood Ratio	48.375	9	.08
Linear-by-Linear Association	18.199	1	.08
N of Valid Cases	221		

Note. 1 cells (6.3%) have expected count less than 5. The minimum expected count is 3.67

Discussion and Conclusions

The primary purpose of this study was to investigate the learning preferences of the social studies university students. The study also investigated differences in learning preferences based on gender and educational level. Overall results indicated that more respondents belong to the assimilator and converger learning preferences. This implies

that social studies students enjoy traditional classrooms and prefer learning through lectures that involve abstract ideas, concepts, and theories. By the same token, students also prefer the application of those concepts and theories to real life or practical problems as they may be encountered in educational settings. These results are justified given the nature of the course of social studies. There is more emphasis on abstract ideas and the application of those ideas in a given learning situation. However, the integration of previous experience with self (diverging) and the encouragement of higher levels of innovation (accommodating) are still not largely emphasized. Results showed no significant differences between males and females in how they learn. Moreover, students from different educational levels did not differ in their learning preferences. Therefore, the following theoretical and practical implications are suggested: First, more research is needed with a larger sample from higher education settings. Second, a mixed method research design of both quantitative and qualitative research should be used to gain a deeper understanding of individual, institutional, and environmental factors that may influence students' orientation toward a particular learning preference. Third, administrators of higher education institutions should move toward changing existing teaching and learning methods to accommodate students' learning preferences. Finally, it is recommended that faculty members in higher education institutions should deliver instruction that accommodate all learning preferences in their classrooms, which covers all type of learners.

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Learning Styles in Environmental Engineering Education at Jordanian Universities: A Comparative Study

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Abstract

Management of environmental resources to protect humanity and the systems that support life is one of the biggest challenges facing modern societies. This is especially true for Jordan, where fragile environmental resources started witnessing higher rates of degradation in recent years. Recognizing this fact and hoping to meet current and future environmental challenges, German Jordanian University (GJU) decided to offer a unique program in Environmental Engineering and Management. Being the first of its kind in the region, the program couples engineering and management with applied education from the first year of students' matriculation.

This paper examined the learning styles of environmental engineering students at GJU using the Index of Learning Styles (ILS) developed by Soloman and Felder. Fifty undergraduate engineering students took the assessments. Findings show a strong preference for the visual category on the ILS. There also was a marked preference for sensing-facts, hands-on, problem-solving, "real world" connection and sequential-linear progression.

The GJU results were compared with the learning styles of civil and environmental engineering students at Jordan University of Science and

Technology (JUST), another public university in Jordan. The findings also agree well with the results of Soloman, who surveyed an even larger number of engineering students. Results from GJU and JUST will be used as a basis to develop a teaching methodology to support the construction of student knowledge and prepare them to work in the field.

Keywords: Environmental Engineering Education, Learning styles, Jordan, Curricula, Inventory of Learning Styles (ILS).

Introduction

In response to increase human pressure on the environment and to meet the changes in environmental requirements, Environmental Engineering Education (E3) has evolved and will continue to evolve into the future. E3 is a growing discipline where the scope of environmental engineering is by no means defined, and where it is necessary to provide discussions that lead to new and innovative concepts of environmental engineering education (International Water Association, 2006). Future education in environmental engineering must provide students with a fundamental background in science and engineering and prepare them to work in interdisciplinary teams to tackle the problems of today and in the future (Guir *et al*, 2004).

Traditionally, environmental engineering has been viewed as a branch of civil engineering that focused on water sanitation (Alha et al., 2000). During the last decades, major changes have occurred in the profession of Environmental Engineering (Smith & Biswas, 2002). Today, environmental engineering has expanded to include all aspects of the human and natural environment, such as water and wastewater management, air quality, solid and hazardous waste management, noise and light pollution, and radioactive waste management (Alha et al., 2000).

The American Academy of Environmental Engineers defines environmental engineering as "The application of engineering principles to the management of the environment for the protection of human health, for the protection of nature's beneficial ecosystems, and for environment related enhancement of the quality of human life". Environmental engineering requires both formal course work and practical experience. It is different from the classical engineering discipline because it is multidisciplinary in nature, covering a broad range of topics from engineering, science, economics, humanities, etc. To take existing engineering curricula and add on environmental units, and then call it environmental engineering, which has been a common approach adopted by many engineering programs (Nguyen & Pudlowski, 2005), is just not enough.

Jordan is an arid to semi arid country with a total area of 92,000 km^2. In 2005 the population was approximately 5.5 million. Due to the increase in population, rapid urbanization and low rainfall (90% of the country area receives about 200 mm annual rainfall) the country's fragile environmental resources started witnessing higher rates of degradation, which poses a heavy burden on the national economy. In a recent study

conducted by the Mediterranean Environmental Technical Assistance Program (METAP) of the World Bank, it has been estimated that in 2000 the annual estimated cost of environmental degradation at the national level in Jordan was about US$ 228 million/year. This counts for 2.8% of the GDP of Jordan as shown in Table 1.

Table 1: Overall Estimated Cost of Environmental Degradation in Jordan in 2000

Environmental Category	US$/year (millions)	JD/year (millions)	Percentage of GDP
Water	100	71	1.2%
Air	64	46	0.8%
Land	50	35	0.6%
Waste	14	10	0.2%
Coastal zones	..	..	..
Sub-total	**228**	**162**	**2.8%**
Global Environment	81	57	1.0%
Total	**309**	**219**	**3.8%**
* Mediterranean Environmental Technical Assistance Program, 2000			

Realizing the above facts, the German Jordanian University (GJU) decided to offer a unique program in Environmental Engineering and Management. Being the first of its kind in the region, the program couples engineering and management with applied education from the first year. The program prepares the graduate for the complex and challenging environmental issues posed by rapid development in Jordan. GJU works to provide them with tools and skills that will enable them to deal with the environmental problems the country faces. In general, curricula are based on a solid foundation of mathematics, natural sciences, engineering science and "real-world" engineering design and operation systems needed in water, wastewater and solid waste treatment. The program also provides better instruction in both oral and written communication skills and teamwork skills; provides training in critical and creative thinking skills and problem-solving methods; and seeks to produce graduates who are conversant with engineering ethics and the importance of incorporating sustainable management.

This research aims to understand students' learning styles at GJU in order to enhance teaching effectiveness, better understand and explain differences in learning among students, and assist students in expanding their repertoire of learning styles. The results will be used as a basis to develop a teaching methodology to support the construction of knowledge of the students and prepare them for the work field.

Literature Review: Learning Styles

Learning styles are an individual's characteristics and ways of gathering, interpreting, organizing, and thinking about information (Davis, 1993). Learning style is a concept derived from psychology. It normally refers to an individual's preference for operating in one way over another, so in that sense learning style tests point to the preferred ways of

perceiving and processing information, whatever the task or whoever the teacher (Kolmos & Holgaard, 2004).

Students learn in many different forms by: seeing and hearing; reflecting and acting; reasoning logically and intuitively; memorizing and visualizing; drawing analogies; and building mathematical models. But there are also many different types of teaching methods. While some instructors lecture, others tend to demonstrate or discuss; some focus on principles while others on applications; and while some emphasize memory, others focus on understanding. How much a student learns in a classroom is not just governed by the student's native ability and prior preparation, but also by the compatibility of his or her learning style and the instructor's teaching style. Mismatches exist between the common learning styles of engineering students and the traditional teaching styles of engineering professors. Consequently, students become bored and inattentive in class; do poorly on tests; get discouraged about their courses, the curriculum, and themselves; and in some cases change to other curricula or even drop out of school. Professors, confronted by low test grades, unresponsive or hostile classes, poor attendance and dropouts, know something is not working; they may become overly critical of their students or begin to wonder if they are even in the right profession. Most importantly, society loses potentially excellent engineers (Felder & Silverman, 1988).

Deficiencies in engineering education have been exhaustively enumerated in recent years and the following solutions proposed (Rugarcia et al., 2000):

1. Teach more about "real-world" engineering design and operations, including quality management;
2. Cover more material in frontier areas of engineering;
3. Offer more and better instruction in both oral and written communication skills and teamwork skills;
4. Provide training in critical and creative thinking skills and problem-solving methods;
5. Produce graduates who are conversant with engineering ethics and the connections between technology and society; and
6. Reduce the number of hours in the engineering curriculum so that the average student can complete it in four years.

The literature in general education, technical education, and educational psychology is replete with methods that have been shown to facilitate learning more effectively than the traditional single-discipline lecturing approach (Felder et al., 2000). So, engineering faculty will need to continue to learn new approaches to teaching and learning, which in turn will require effective professional development for both new and experienced instructors alike (Fink et al., 2005).

Methodology: the Index of Learning Styles

The Index of Learning Styles (Soloman & Felder,online) is an instrument to assess preference on four dimensions of learning: processing, perception, input, and

understanding. Each dimension is a continuum of characteristics. For processing, learners tend to be either active or reflective; for perception, learners tend to be either sensors or intuitors (e.g., they are better at rote memorization or they are better at abstractions); for input, learners tend to be either visual or verbal in how they prefer to receive information; while with the understanding dimension, learners tend to be either sequential (e.g., logical) or global (e.g., holistic) in how they learn (Soloman & Felder, online; Felder & Soloman, online).

The ILS consists of 44 simple questions with the choice of two possible answers for each question. One dimension – which measures how "... the student prefers to process information" (Felder & Henriques, 1995, p. 22) – categorizes students as either active/reflective learners. According to the theory of learning styles proposed by Felder and Soloman, active learners tend to retain and understand information by trying things out and seeing how they work or might work with others, while reflective learners like to think things through first (i.e., before action). Another dimension – which measures "... the type of information that the student preferentially perceives" (Felder & Henriques, 1995, p. 22) – categorizes students as either sensing or intuitive learners. Sensors like to learn facts, use well-established methods and are practical and careful, while intuitive learners tend to work fast and be innovative and can often handle abstract and mathematical concepts well. A third dimension measures "through which modality sensory information" is "most effectively perceived" (Felder & Henriques, 1995, p. 22); in other words, whether they employ either a visual or a verbal scheme. Visual learners like diagrams, pictures, graphs and films, while verbal learners learn more out of words they hear and see written. A fourth dimension measures how "the student progresses toward understanding" (Felder & Henriques, 1995, p. 22). Sequential learners follow linear and logical steps, while global learners learn in leaps and via the big picture.

Ideally we would directly assess the correlation between teaching and learning styles. Research suggests several hypotheses: students whose learning styles are compatible with their instructor's teaching style tend to retain information better, obtain better grades and maintain a greater interest in the course (Felder, 1993); students taught in their least-preferred mode do not learn well, earn poorer grades and are less interested in their courses; and students taught only in their preferred mode will not develop balanced learning skills.

Since learning styles vary among students, and because the ability to learn via less-preferred learning styles sometimes is required of students, for teaching to be effective the instructor must give all students opportunities to learn in their preferred modes at least some of the time as well as challenging students to learn via other styles. This is achieved by varying class organization, teaching techniques and learning activities. The more successful an institution is at manifesting various teaching and learning styles, the more likely it is to produce graduates who are both adept and adaptable at learning.

As a first effort, here we intend to assess if there are basic differences in learning styles among students at two Jordanian universities and at different levels of education. This is a promising first step, since it provides an essential baseline for further research. If

differences are observed at this basic level, then we can extend our research to assess the correlation between teaching and learning styles as well as between learning styles and academic performance.

Data Analysis

To assess whether there are basic differences in learning style, 118 students were surveyed (68 students from JUST and another 50 students from GJU). Data collected at JUST and GJU is in ratio form, i.e., it is recorded as numeric values. The Inventory of Learning Styles (ILS) arranges these values on a Likert scale from +11 to -11, but in contrast to most Likert scales (and simple mathematics), the ILS places positive integers on the left side and negative integers on the right side of the scale. Hence the active, sensing, visual, and sequential values are represented as positive (to the left), while the reflective, intuitive, verbal, and global are represented as negative (to the right). In Tables 2 through 6, the value in each cell is the average score on that dimension for students in the sample at that particular institution (JUST or GJU) and during that particular time (first or second semester). The results for Tables 2 and 3 show that GJU's second semester students are more active, sensory, visual, and sequential than GJU's first semester students.

Table 2: Engineering Students' Learning Styles (GJU, 1st Semester 2008)

Processing	***Perception***	***Input***	***Understanding***
0.5	***0.74***	***1.91***	***0.03***
Total number of students = 25			

Table 3: Engineering Students' Learning Styles (GJU, 2nd Semester 2009)

Processing	***Perception***	***Input***	***Understanding***
1.8	***1.96***	***3.96***	***1.88***
Total number of students = 25			

In contrast, the results for Tables 4 and 5 show that there is little difference between the first and second semester JUST students in terms of their learning styles, with the partial exception of the understanding dimension; the second semester JUST students are less sequential in their learning style than the first semester JUST students.

Table 4: Engineering Students' Learning Styles (JUST, 1st Semester 2008)

Processing	*Perception*	*Input*	*Understanding*
-0.72	*2.56*	*2.9*	*1.36*
Total number of students = 24			

Table 5: Engineering Students' Learning Styles (JUST, 2nd Semester, 2009)

Processing	*Perception*	*Input*	*Understanding*
-0.72	*2.51*	*2.47*	*0.04*
Total number of students = 44			

When one compares the GJU results (Tables 2 and 3) with the students' learning styles for civil and environmental engineering at Jordan University of Science and Technology (JUST) (Tables 4 and 5), one of the best schools in applied sciences in Jordan, one sees a contrast on the processing, input, and understanding dimensions. For instance, both the first and second semester JUST students' average score is -0.72 (approximately negative 1) on the processing dimension, while the spring semester GJU students' average score is 1.80 (approximately positive 2) on this same dimension. Table 6 combines all four samples into one table for easier comparison.

Table 6: Engineering Students' Learning Styles (Summary Table)

	Processing	*Perception*	*Input*	*Understanding*	*N*
GJU First Semester	***0.5***	***0.74***	***1.91***	***0.03***	***25***
GJU Second Semester	***1.8***	***1.96***	***3.96***	***1.88***	***25***
JUST First Semester	***-0.72***	***2.56***	***2.9***	***1.36***	***24***
JUST Second Semester	***-0.72***	***2.51***	***2.47***	***0.04***	***44***

The results for GJU students are similar to those of Soloman (1999) who surveyed large volumes of students via her on-line site (Figure 1). Just as with Soloman's survey, GJU students show a greater tendency to be active in their processing style, but in contrast to Soloman's survey, GJU students are more sensory in their perception style than in her survey and less sensory than JUST students.

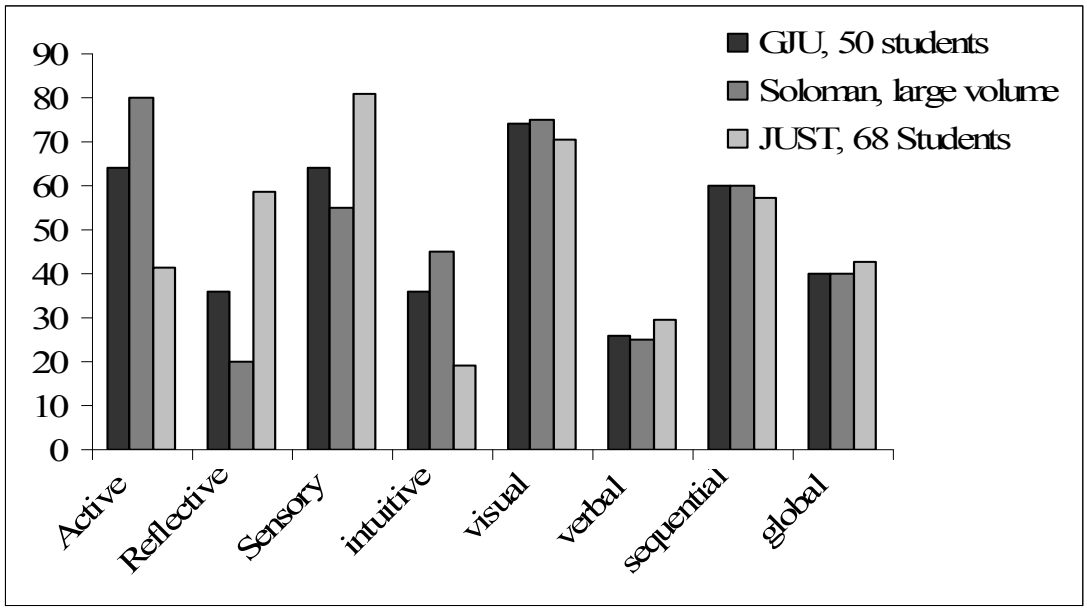

***Figure 1*: GJU & JUST Engineering students' learning styles vs. Soloman (1999)**

These descriptive findings raise an interesting question: Are the differences in learning styles among these samples significant? In other words, are JUST and GJU students in general – not just in these samples – different in their learning styles? Likewise: Are first-semester and second-semester students as a general population different from each other in how they learn?

Analysis of variance (ANOVA) is an ideal test to answer these questions. ANOVA tests if there is a relationship among characteristics specified in three or more samples measured at the interval/ratio level of measurement. It determines if the variance within each sample is greater than the variance among the samples. As with all statistical tests, the null hypothesis – i.e., that there is no relationship among characteristics – is what is tested, and if the likelihood of not finding an association is greater than 0.05 (alpha) in repeated sampling, then the null hypothesis is retained. For there to be an association between the characteristics specified in the samples, variance among the samples must be significantly greater than the variance within each sample. Fisher's ratio (also called the F-test) is the test statistic that gauges this. When this statistic reaches or exceeds the critical value for the appropriate sample size and number of samples, then the null hypothesis – i.e., that there is no relationship among the characteristics specified – is rejected. In brief, this is what ANOVA assesses.

There are four samples: first- and second-semester JUST students as well as first- and second-semester GJU students. Thus the characteristics by which the samples differ are university and semester. Table 7 includes summary data on each characteristic. Based on our sample sizes and the number of samples, the critical value for the F Ratio is 2.92; this means that at this value the likelihood of not finding an association is less than 0.05 (5 times in 100 repeated samples). Under these odds, we can reject the null hypothesis (of no association among samples based on that characteristic) and instead claim with

reasonable odds that an association does exist. Processing is the characteristic upon which it can be claimed that there is a significant difference among the four samples in this study (F Ratio = 2.94). In contrast, there is no significant difference among the four samples based on the other characteristics.

Table 7: Analysis of Variance (ANOVA)

GJU and JUST Engineering Students' Learning Styles, 2008-2009

	Processing	***Perception***	***Input***	***Understanding***
SS Between	***122.12***	***59.58***	***58.68***	***75.89***
MS Between	***40.71***	***19.86***	***19.56***	***25.3***
MS Within	***13.85***	***17.13***	***23.38***	***17.45***
F Ratio	***2.94***	***1.16***	***0.84***	1.45

But which samples are responsible for this difference? Tukey's HSD (Honestly Significant Difference) test allows researchers to answer this question. Tukey's test calculates a Q statistic for the difference between paired samples. In our study, there are four samples; thus six pairs of samples must be tested.

Table 8 lists the Q statistics for these pairs. Samples 1 and 2 refer to the first and second semester JUST students, while samples 3 and 4 apply to the first and second semester GJU students. Just as with ANOVA, the critical value for rejecting the null hypothesis is the same, i.e., 2.92. As can be seen in the table, two pairs – samples 1 and 4 (Q statistic = -3.56) as well as samples 2 and 4 (Q statistic = -3.57) – account for the difference among the samples. The negative sign describes the direction of the difference between these paired samples: the first and second semester JUST students are more reflective learners, while the second semester GJU students are more active learners. Explained another way, the average score on the processing learning style of approximately -1 (i.e., -0.72) for first and second semester JUST students is significantly different from the average score on the processing learning style of approximately 2 (i.e., 1.8).

Table 8: Tukey's Honestly Significant Difference (HSD)Test 2008-2009

	Q Statistic
Samples 1 and 2	***0***
Samples 1 and 3	***-1.73***
Samples 1 and 4	***-3.56***
Samples 2 and 3	***-1.73***
Samples 2 and 4	***-3.57***
Samples 3 and 4	***-1.84***

Interpretation

The results of the present study show that on average the second semester GJU students are more active learners than the first and second semester JUST students. JUST students are more reflective learners who think about new information before putting it to use.

This finding resonates with the mission and curriculum of German Jordanian University. Its environmental engineering program is specifically designed to provide hands-on laboratory-based experiences for its students that develop their ability and skills in the measurement and monitoring of different types of pollutants as well as the evaluation and efficient removal of such pollutants through the application of appropriate treatment technologies. For example, in order to enrich the practical capabilities of the students, at the end of each year during the summer, students must spend about 120 hours of basic environmental practical training outside the university at an appropriate organization (e.g., a company, consulting firm, or public authority). In addition, after finishing the third year, students must spend their fourth year in Germany. The first semester is at a German university where they take courses equivalent to 12 credit hours. After passing the courses, students spend the second semester in practical training at one of the industries that deals with environmental issues.

In the fifth year the students begin work on their graduation projects. Each group of students (4-5 students) is assigned a supervisor who works closely with them to select a topic. The topics may cover either engineering design of unit operations for water, wastewater, or solid and hazardous waste treatment or it may cover topics in environmental management such as environmental impact assessment or environmental auditing for certain activities. The students have the opportunity to work individually or in tandem, depending on the nature of the project and their learning styles. But in either case, by this point the traits of an active learner have become second nature (i.e., an established habit) to GJU students.

Application of Felder's idea - stopping several times in a teaching session to pause for thought and pose a short question for discussion - would provide support for reflective

learners (Felder, 1988). This technique is effective, especially for the low number of students (maximum is 25 in each class) and would assist in breaking up the 90-minute session, thereby making the experience more stimulating and rewarding for students.

Another suggestion (Felder, 1993) is to talk to students about their learning styles and the strengths and weaknesses associated with each style. The researchers propose to incorporate this topic into our discussions with first-year students in the hope that this will guide students in how they can achieve effective learning. Research suggests that faculty who are sensitive to their students' learning styles can reach students more quickly and more easily than those who force their students to adapt to the traditional read/lecture-only approach. Conducting a workshop for all instructors at the beginning of each year is also proposed, to discuss students' learning styles and how faculty can achieve effective teaching.

Conclusion

Using the Index of Learning Styles (ILS) developed by Soloman and Felder, this paper examined the learning styles of environmental engineering students at German Jordanian University (GJU) and Jordan University of Science and Technology. More than one hundred undergraduate engineering students took the survey. For GJU students, there was a strong preference for the active, sensing, visual, and sequential categories of learning; these traits increased between the first and second (i.e., fall and spring) semesters. The study results also agree with Soloman (1999) who surveyed large volumes of engineering students. Comparison of the GJU and JUST samples showed that there are significant differences between these two populations in their processing learning styles, with GJU students being significantly more active in how they process what they learn, while JUST students are much less active.

These findings raise the question of how GJU academics should modify their teaching styles and activities for their students. GJU students are active, visual, and sensory learners; this suggests that a hands-on approach, practical experiences, graduation project, and the use of visual aids (e.g., pictures, diagrams, flowcharts, films, demonstrations etc.) should be continued. Similarly for sensate learners, providing concrete material such as lecture notes, examples and showing how information connects to the real world will continue to be useful strategies. On the other hand, to improve the weakness in terms of verbal and intuitive abilities, presentations, oral and written explanations, and readings can be used to develop verbal skills, while explanation and application of theories or models that develop fundamental understanding can be used to develop intuitive thinking (Felder, 1993).

In reality, you will find students of all learning styles in our classes; we need all types of students in the engineering profession and as instructors we need to address all learning styles in our classes, by adapting our teaching to a variety of learning styles and not letting our own preferred teaching style override student learning. The best way to do this is by varying class organization, teaching techniques and learning activities.

Faculty members and students need to be aware of their learning styles. Faculty need to apply this knowledge to their teaching and to raise awareness of the different learning styles and reflect on team communication and cooperative learning. Cooperative learning (CL) is an instructional approach in which students work in teams on a learning task structured to have the following features: positive independence, individual accountability, face-to-face primitive interaction, appropriate use of interpersonal and teamwork skills, and regular self-assessment of team functioning (Felder et al., 2000).

As long as ILS is used to help instructors to achieve a balanced course instruction and help students to understand their learning strengths and area for improvement, our analysis suggests that ILS instrument is reliable, valid and suitable. Also, this research sets the foundation for future work, to develop a learning methodology, whereby learner characteristics can be used to establish an environment to support the construction of knowledge by GJU students.

Further research is needed to assess the correlation between teaching and learning styles as well as between learning styles and academic performance.

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Private Higher Education in Australia: Growth, Quality and Standards

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Abstract

In the last five years private higher education has grown significantly in Australia. The growth of private higher education is also experienced in many parts of the world. Government regulation and policies related to higher education, the inability of public universities to meet the needs of the growing population and decreased funding of public universities with subsequent low student satisfaction have been key contributors to the rise of student participation in private higher education and growth in private providers. In 2008, private higher education enrolments in Australia were 64,092 (6 percent of the total student population). The growth of private higher education in 2008 was 20.8 per cent compared to 2.6 per cent in public universities (Commonwealth of Australia, 2009). The number of private higher education colleges has also grown from five in 2000 to approximately 150 in 2008. Based on this trend it is predicted that by 2020 private higher education in Australia will contribute approximately 30 per cent of total higher education enrolments in Australia.

While private higher education enrolments and the number of institutions has grown significantly with signs of strong continuing growth, there are critical issues around quality and standards that need to be addressed to ensure comparable academic standards to universities.

This paper provides an overview of the growth of private higher education in Australia and internationally with an analysis of factors contributing to the growth in Australia. It outlines issues around quality assurance and standards, based on the experience of the authors in working closely with five Australian private providers in self-reviews, quality assurance and external quality audits and course development. An analysis of recurring

themes as a result of the external quality audits of 19 private higher education institutions in Australia is also discussed. The paper concludes by providing recommendations that could be used by government and private providers to improve quality assurance and academic standards.

Keywords: *private higher education, quality assurance and standards.*

Introduction

The current Australian university sector consists of 36 public, three private and one overseas university. The sector also consists of four self accrediting higher education institutions. It is perhaps not widely known that the higher education sector also includes 150 private higher education providers which offer and confer qualifications at all levels in the Australian Qualifications Framework. These qualifications hold equal legal and recognition status equivalent to that of university degrees. As of 2008, private higher education enrolments in Australia was 64,092 (6 per cent of the total student population). The growth of private higher education in 2008 was 20.8 per cent compared to 2.6 per cent in public universities. The number of private higher education colleges has also grown from five in 2000 to approximately 150 in 2008. Based on this trend it is predicted that by 2020 private higher education in Australia will contribute approximately 30 per cent of total higher education enrolments in Australia. The potential in private higher education is reflected in the transformation of private providers over the last decade from small Australia-owned businesses providing non accredited training to ownership by well resourced overseas consortiums providing accredited training.

There is no doubt that private higher education in Australia will continue to rise as a result of the introduction of FEE-HELP and Commonwealth government policy on increasing the access and participation of students from diverse backgrounds in higher education. The introduction of VET FEE-HELP in the Australian Vocational Education and Training (VET) sector is also testament to the way policy initiatives are encouraging diversity of providers and student choice. Such developments were anticipated by a number of observers in the late 1990s, including management guru Peter Drucker who suggested that within 30 years traditional universities would disappear, outcompeted by new forms and entities of higher education provision.

According to Shah and Brown (2009), external drivers such as the government policy, growth of higher education, decreased public funding of higher education, student choice and unmet demand are some of the many factors that have played a key role in the rise of private higher education in Australia. Table 1 outlines four key factors that have contributed to the rise of private higher education in Australia (Shah and Brown 2009).

Table 1: Factors Contributing to the Rise of Private Higher Education

Government Policies	Public Universities	Private Providers	Stakeholders
National Protocols 2000 and revisions 2007 Introduction of FEE-HELP AUQA audits to prove quality Decreased public funding of higher education Migration policies	Decreased funding Focus on high scoring students Focus on internationalisation and other sources of income Bureaucratic structures Decline in student satisfaction Students seen as student rather than a customer Increased class size Increased student-staff ratio Limited resources and infrastructure	Small, agile and nimble Distinctive feature Small class size Engaged learning Discipline oriented Strong links with industry/employers Flexible Corporate business culture Marketing and advertising Strong quality and improvement culture Customer oriented strategic plan Self reliant	Increased student choice Diverse student groups Demand for quality education Value for money The student experience Labour market trends Specific needs (e.g. religious education) Gen Y more sophisticated about brand and market value

Source: Shah and Brown (2009).

Growth of Private Higher Education

The growth of private higher education has been experienced in many part of the world including Europe, United States, Japan, Korea, New Zealand, Australia, Indonesia, Malaysia, India, China, Hong Kong, South Africa, Taiwan, Brazil, Uganda, Kenya, Tanzania and Philippines (Gupta, 2008). Private higher education caters for more than 70 per cent of students in India, Malaysia, Japan, South Korea, Indonesia and Philippines, more than 30 per cent in mainland China and more than 15 per cent in Thailand and Vietnam (Gupta, 2008) and 9.3 per cent in New Zealand (Xiaoying and Abbott, 2008). In China more students prefer to study in private colleges in order to acquire "vocational knowledge" or "a clear future career orientation" (Wei, 2006, pp 8). Private higher education is also growing in the Middle East. According to Al-Atiqi and Alharbi (2009),

private higher education in Kuwait is expected to grow by 45,000 students which will exceed student enrolments in public university. The growth is also expected in Saudi Arabia, Oman and Afghanistan.

Private higher education is found to be more adaptable to the changing needs of the market and to provide more autonomy and a wider choice of job-related skills to students and employers. According to Levy (2007, pp 11), they are generally more "secular", "culturally diverse", "less politicized" and "learner-friendly". Across the world, traditional universities are losing their monopoly with large number of private institutions entering higher education. A study undertaken by Oketch (2009) in three African countries suggests that private higher education has improved access to university education and could play a strategic role in widening participation in future. According to Jalowiecki (2001), private higher education in Poland is more responsive to the demands of the economy and tends to operate more efficiently. Studies by Galbraith (2003) in countries such as Poland and Romania, where private higher education enrolments represent almost one third of tertiary students, concluded that private institutions were better able to meet the higher education needs of these societies. Research undertaken by Shah and Brown (2009) in Australia suggests that private higher education institutions perform 10 per cent higher on student satisfaction measured via the Course Experience Questionnaire (CEQ), for good teaching and overall satisfaction. The study also shows that five out of six participating private higher education institutions in the survey are performing in the top ten, with two private universities and only three public universities.

In countries like Australia where the capacity of public higher education is unable to meet the demands of the wider population, private higher education appears to fill the gap between demand and supply in the most demanding study fields. Research by Chae & Hong (2009) suggests that private higher education has played a significant role in Korea for example in increasing the participation in higher education of people in the 25 - 64 age groups to 32 percent, which is 6 per cent higher than the OECD average of 26 percent.

Private higher education to some extent provides courses not traditionally offered in mainstream higher education (e.g. theology, counseling) thus contributes to broader study areas addresses higher education access in a different way (for example higher numbers of international students). McCowan (2004) suggests that the existence of private higher education in Brazil with the advantages of ease of entry, flexible hours and locations outside metropolitan areas meant that many Brazilians have obtained a university degree who would not otherwise have been able to access publically funded tertiary institutions. Shah and Brown (2009) suggest that some of the distinguishing features of private higher education colleges in Australia which are attractive to prospective students include; the experience of teachers from industry, small class sizes, opportunity for students to undertake paid practicum's and internships while studying, high student satisfaction and graduate employment. Private higher education has proven to be responsive in areas of demand which may prove economically beneficial for the institution with business acumen. According to Lee (2008), private higher education institutions tend to offer courses that do not require high capital cost. They are well informed about market intelligence and growth avenues and use innovative marketing strategies to reach to

prospective students (for example Think Education: Group in Australia provides a job search tool 'Seek' on the internet and gathers information on search queries to map market demand). Private higher education is also fast in adapting to new modes of education delivery with growing number of providers offering flexible and online learning. The strategies used by the private institutions in terms of marketing and self funding now resembles public universities who are moving towards self reliance due to decreased public funding. Increasingly, in recent years public universities in Australia are working collaboratively with private providers to recruit students in partnership or pathway programs.

However it can be argued that the premise that higher education is for the public good is being diminished by the approach to higher education as a marketable and saleable commodity. The rise in fee paying international students and university self reliance through sourcing alternative sources of income in an environment of decreased public funding suggests that higher education is now a business rather than a public institution. The paradigm seems to have shifted from meeting the needs of the society and fulfilling the moral purpose of education for the public good to one which is more focused on income generation and mass production of graduates. The inherent risk in this strategy is that higher education institutions in future years may be seen purely as commercial endeavours by stakeholders. Altbach & Levy (2005) suggest that the franchise of courses and programs by private colleges is the "McDonaldization" of higher education. According to Lee (2008), for countries to be competitive in the global market, neo-liberal ideology define posits that there should be a shrinking of the welfare state and cutbacks in social expenditure. This view implies drastic cutbacks in public spending and the privatization of public service such as health, education, housing and transportation. The idea behind any privatisation is based on the argument that the public sector is wasteful, inefficient, and unproductive, while the private sector is deemed to be more efficient, effective, and responsive to rapid change (Walford, 1990).

Multi country studies into higher education reforms reveal a convergence in policy on resource allocation, revenue generation, realignment to accommodate new demands, and reorganisation for lower costs, increased efficiency, increased productivity and improved teaching quality (Rhoades, 1995; Slaughter and Leslie, 1999). Lee (2008) argues that government support for the growth of private higher education is due to factors such as; widening of access and increase in enrolments in the face of increasing government budgetary constraints, meeting the social demand for higher education, letting students (buyers) pay for tuition and self funding by private providers themselves. The experience in Brazil suggests that private higher education brings public benefit at little public cost as institutions provide their own funding (McCowan, 2004).

The catalyst for the growth of private higher education in Australia and internationally are based on four interrelated factors including government policy on higher education aimed to increase participation and improved diversity, governments' political agenda to meet the social demand of higher education at the reduced cost of private higher education institutions, public university structures and decreased funding which resulted in unmet demand of the wider student population, competitive strategies used by private

providers to meet the needs of students and the demand from stakeholders. The public funding of private higher education is low and in most cases private education providers are smaller than public universities.

In Australia, the participation of students in private higher education incurs less cost for the government than funding universities, and therefore the consensus is that private higher education is beneficial for any government as a cost saving measure. Trainers and educators employed by private higher education providers are more financially precarious and have a lower profile in research and critiques of government policy, so this development is a comfortable option for government.

In most countries, including Australia, private providers set tuition fees at far higher levels than public universities. Research undertaken by Shah and Stanford (2009) suggest that the average domestic undergraduate student fee in Australian private colleges is $40,000 compared to $16,000 in public universities. This According to the ‘‘resource dependency theory’’, higher education institutions that depend on tuition fees for the main part of their revenues must offer study fields that require low infrastructure costs, little investment and attract as many students as possible (Fried *et al* (2006).

One of the models which have proven to be very successful in Australia is the partnership between public universities and private higher education providers. Navitas is one of the largest private higher and vocational colleges in Australia. It currently has partnerships with eight Australian universities. The partnership includes students undertaking a one year diploma with Navitas and a two year undergraduate degree with the partner university. The motivation for most students who enter into the Navitas College is the pathway it provides to the university upon successful completion of the one year diploma. A large proportion of students (more than 70 per cent) who enter into Navitas to undertake the diploma are international students. The partnership has proven successful in many ways including fostering partnerships with public universities, approval of courses and curriculum by the partner university, assessment moderation with the partner university to ensure quality, teachers working for both the private college and public university, sharing campus facilities such as library and student support services, oversight by the university on quality assurance processes and recruitment and retention of students with pathway to university and the supply of international students from private college into the university. Analysis suggests that private-public partnership by Navitas contributes to more than 30 per cent of annual international student enrolments with more than $60 million turnover for two year degree with more than 2500 students each year in each partnered university.

Overview of Private Higher Education Accreditation in Australia

The accreditation and registration of private higher education in Australia is managed by each State and Territory government. All higher education institutions including public universities have to comply with Commonwealth policies such as National Protocols for Higher Education Approval Processes and the Education Service for Overseas Students (ESOS) Act which aims to ensure quality education services and protect the interests of

overseas students, by setting minimum standards and providing tuition and financial assurance. Private colleges are re-accredited every five years by State/Territory governments and their courses are also re-accredited on a five year cycle. External quality audits were commenced in 2007 by an independent agency: Australian Universities Quality Agency (AUQA), and are conducted on a five year cycle using a fitness for purpose approach.

The devolution of Commonwealth government authority for private higher education to State/Territory governments in Australia has proven problematic, with different States/Territories interpreting protocols and guidelines in different ways with lack of consistency across Australia. The Bradley review of higher education acknowledged inconsistent States/Territories registration and re-accreditation and the problem has also been heralded in recent media in Australia due to the collapse of several private colleges together with problems raised by international students. A similar experience is observed by Fried *et al* (2006) in Europe.

Quality and Standards: *Future Challenges of Private Higher Education*

Both public and private institutions contribute to the national economy by preparing graduates and meeting the needs of various stakeholders. Fried *et al* (2006) argues that graduates from both public and private institutions have better career opportunities, and thus greater economic potential than non-higher education graduates, which strengthens the human and social capital of a given society. Governments, students, employers and the broader society need to have confidence in higher education so that graduates are able to meet the current and future needs of the society. If it is accepted that the purpose of any higher education institution is to fulfil their moral purpose for the public good, this is challenged by the focus of private providers on growth and maximising profit.

According to Gupta (2008), private higher education institutions are criticised for the lack of quality and accessibility. Issues and concerns about the quality of private colleges are also highlighted by research undertaken in Brazil (McCowan, 2004). McCowan suggests that national assessment undertaken with all higher education students in Brazil to assess performance shows that private colleges perform considerably worse than public institutions (2004). Research undertaken in China suggests that the rise of private higher education has raised concerns about quality assurance and the social status of institutions (Mok, 2009). This has led to student protests about the quality of education, type of degrees offered and expectations not met in practice (Mok, 2009). Such protests and issues around quality of education have also been experienced in Australia with private vocational colleges. The causes of student protests were heralded in recent media related to high tuition fees, poor quality teaching and lack of support services particularly for international students. Research in Kenya studied the perceptions of students in public and private education. Oketch (2009) found that students who aspired to study in university (30.8 per cent) had positive perceptions of private higher universities and 69.2 per cent had negative perceptions. 90.5 per cent of students considered public universities to be better than private universities.

Recent media reports promulgated by several Vice Chancellors and senior academics in Australia expressed concerns around the lack of government planning and inconsistent regulation of private higher education. In November 2004, the Australian newspaper reported that the offshore component of Australian private higher education was an area of risk and needed to be monitored refs. The year 2009 has attracted media interest in Australia with the collapse of some private colleges mostly offering courses to international students. The National Union of Students in Australia recently argued that students in private colleges have many concerns relating to courses and a there is a mismatch between marketing and advertisements, and the educational experience actually provided. The Polish experience also shows that private higher education has negative impacts including low standards of teaching, institutions focusing on maximising profits, serious staff shortages and a narrow focus on institutional governance (Jalowiecki, 2001).

One of the significant risks of private higher education in Australia is dependence on international student income with some private colleges enrolling more than 80 per cent of international students. . The second key risk is offering courses based on skills in a demand list produced by the government. Courses such as accounting and finance, commercial cookery, hospitality, hair dressing, beauty therapy and community welfare have grown due to migration policies which allow international students to apply for permanent residency with additional points awarded to students who have undertaken courses in Australia.

The Bradley Review of Higher Education in Australia heralds significant changes for all higher education institutions over the years 2010 - 2014. The move from 'fitness for purpose' to an academic standards quality audit by the new Tertiary Education Quality and Standards Agency (TEQSA) signals rigorous and stringent regulations for both public and private higher education. The current approach used by AUQA to audit institutions is based on institutional objectives and goals aligned to achieve the institutional mission. The new approach will be more focused on ensuring that academic processes and programs or courses are comparable and they meet minimum threshold standard with evidence of student attainment of learning outcomes.

The issues outlined in this section of the paper on quality and standards in private higher education in Australia are based on the experience of the two authors in working with private higher education colleges as consultants on whole of organisation self- reviews, helping institutions prepare for external quality audits, course development, discussions with sessional academics and students. An analysis of recurring themes from 19 AUQA audit reports of private higher education institutions published until March 2010 have been analysed and discussed.

Institutional Governance

Institutional governance in the academic area plays a key role in ensuring thorough and rigorous academic processes (Shah and Stanford 2009). An Academic Board and its sub-committees are accountable to ensure that academic programs and processes are comparable and equivalent with other higher education institutions. The extent to which an Academic Board can make independent decision is inconsistent across private higher

education providers. For example, private colleges may be operated by family members who are dominant and influential in all aspects of the institutional operations including academic governance (Altbach & Levy 2005). The AUQA audit reports of private higher education colleges audited to date confirms the need to ensure that the Academic Board is independent and their decisions are not influenced by either the Board of Directors and/or owners of the college. In some instances colleges have grown significantly from vocational to higher education delivery and may be operating across various States/Territories; however institutional growth may not be accompanied by a review of governance structures. The analysis of ten AUQA audit reports of private higher education providers by Winchester (2009) also confirms that institutional and academic governance as an area needing significant improvement.

Strategic Planning and Resourcing

Strategic planning processes in private higher education are different from that of public universities. In public universities, the planning process is based on wide consultation and an evidence based approach-using data, analysis of internal and external operating environment and approval by the University Council (Shah and Skaines, 2008) Universities strategic plans outline priorities such as: learning and teaching, research, community engagement, internationalisation, human resources, equity and resourcing and infrastructure needs. In the case of private higher education providers, the strategic plan is developed by the college executive or in some cases by the owner(s) of the college with minimal consultation and communication with other stakeholders. In many colleges the key priority includes growth of the institution rather than improving the quality of teaching, infrastructure and student experience (Shah and Stanford, 2009; Shah and Brown, 2009). While private higher education has grown rapidly, there appears to be a lack of planning in the area of learning and teaching, resourcing and infrastructure needs to align with key growth objectives. The analysis of 2008 student population data suggests that some colleges have grown by more than 100 per cent in commencing student enrolments compared to 2007 data (Commonwealth of Australia, 2008).

Culture of Compliance rather than Improvement

Most private higher education providers in Australia commenced operating as vocational education and training colleges offering certificate and diploma qualifications. Changes in higher education policy have enabled private vocational providers to seek non-self accrediting status in order to offer higher education courses. As vocational providers, all institutions are subject to Australian Quality Training Framework (AQTF) audits conducted by State or Territory governments. Pre 2007, AQTF audits were focused primarily on compliance and it is evident that the culture of compliance still exists in private colleges (Shah and Brown, 2009). While compliance with external regulatory requirements is important, it is evident that there is a real need to ensure that quality management and improvement remain sustainable and are used for the purpose of long term improvement rather than short term “tick box” compliance requirements.

Academic Leadership

The learning and teaching pedagogies in higher education are different from those used in vocational education as evidenced by a focus on learning objectives and outcomes rather

than competencies. Private providers require Certificate IV in Training and Assessment as a minimum qualification to teach vocational courses while universities emphasise higher education qualifications, usually to the level of Graduate Certificate, in tertiary education. Academic leaders with proven experience in teaching, research and management of staff, courses and units bring significant expertise to the provision of university education. In some private colleges, whilst Heads of Colleges and Program Directors have experience in managing vocational colleges and programs, they usually have limited experience in academic leadership in higher education contexts (Shah and Stanford, 2009). To ensure high academic standards, any proposed regulatory framework for higher education providers will need to emphasise the recruitment, selection and retention of suitably qualified academic leaders.

Use of Sessional Lecturers

Almost 100 per cent of teaching staff in private higher education in many part of the world are sessional or engaged in a part-time capacity (see for example Fried *et al*., 2006 in Europe and Shah & Stanford, 2009; in Australia). Among the over reliance on sessional academics has led to criticism about the lowering of quality in higher education particularly around assessment practices and a reduction in research-led teaching (Fried *et al.,*2006). Many studies have found that students taught by sessional academics received significantly higher grades than students taught by full-time academics (Van Ness *et al.,*1999; Kezim et al, 2005; Leverett *et al*, 2005 and Bonner, 2005), The employment of sessional staff leads to high staff turnover, creates difficulty in building and maintaining a consistent quality culture for organisations and is not equitable.

Research and Culture of Critical Inquiry

Higher education fundamentally aims to advance knowledge and understanding and contribute to an improved national economy through high levels of skills, knowledge and research. Teaching in higher education is normally informed by research to bring new knowledge to students. AUQA audit reports indicate an inconsistent application of resources and infrastructure to support research and publications and build a culture of critical inquiry in private providers of higher education. There is also inconsistent support and structures in private colleges for staff to undertake higher degrees in research such as study leave and participating in conferences. There seems to be a lack of a research culture in private colleges, with an emphasis on teaching only. Study by (Shah and Stanford, 2009) with four private higher education providers suggests lack of support and infrastructure for teaching staff to be engaged in research activities.

Admission Criteria

Various researches suggest a correlation between student achievement in high schools and university retention rates (Ashby, 2004; Krause, *et al*, 2005; Rickinson & Rutherford, 1996; Yorke & Longden, 2007). Student admission standards in private colleges are lower than those of universities, which provides access to students otherwise unable to gain a place at a university. According to Shah and Stanford (2009), entry criteria for domestic students in undergraduate courses are, on average, 60 ATAR or UAI in private colleges in Australia. According to Wasley, Hampel, & Clark (1997), academic rigour should not limit educational access and opportunity for non-traditional students. Nor

should outcomes be mandated without considering the means for facilitating student learning. To achieve high academic standards and academic rigour, private colleges need to ensure that enabling support systems are adequate to support students who maybe unprepared for tertiary education and maximise their opportunities for success.

Equity and Diversity

Higher education should be equitable for all students, particularly students from various equity groups who have been disadvantaged in the past. The current Australia government's vision for higher education is focussed on improving the access, participation and success of under-represented groups of students in tertiary education. Such vision can only be achieved if private institutions play a lead role in fulfilling the moral purpose of higher education and are encouraged to provide equitable access to all groups of students with government funding. The participation of Indigenous students and students with disabilities is significantly lower and in some cases zero in some private institutions compared to universities. Based on 2008 data, private higher education only contributed 6.8 per cent of students from various equity groups (Commonwealth of Australia, 2008).

Staff professional development

A number of lecturers in private higher education teach in both vocational and higher education courses. The methodological approaches to assessment for vocational courses versus higher education courses differ significantly on a range of levels. Discussions with sessional lecturers in four large private colleges suggest the need for colleges to invest in staff professional development particularly when large proportions of staff are sessional or casual. The focus of professional development may include; learning and teaching methods, student engagement and retention, improving teaching and learning outcomes, student assessments, academic policies and procedures and other organisational related information. The analysis of ten AUQA audit reports by Winchester (2009) also affirms the need for private colleges to invest in staff development.

Conclusion

Private higher education in Australia will continue to grow. By 2020, it will contribute 30 per cent of all higher education enrolments. The global recession in 2008-2009 has proved that at a time when the growth of major industries has collapsed, education has been a very successful economic commodity. Entrepreneurs have begun to see higher education as an attractive area of investment. The growth of enrolments in private higher education is in both domestic and international student markets. The global trend in higher education is moving towards an ideology of the private good, with education seen as a business commodity. From a political point of view, governments support the expansion of private higher education for reasons including; increased access and participation of students to meet government targets, diversifying higher education and private education does not require public funding and it provides public benefit at little public cost.

As a result of the Bradley review of higher education in Australia, the Commonwealth government will take over the current roles and responsibilities of the State/Territory government in registration, accreditation and re-registration of private colleges and their courses. The move is welcomed by many including private colleges who see the current system as inconsistent, bureaucratic and in some cases difficult rather than rigorous. The issues at stake in the expansion of private higher education in Australia are "autonomy versus accountability", "growth versus quality", "access versus equity" and "quantity versus graduate quality". Institutions need to be accountable for quality assurance and provision of high quality education comparable to those offered in universities. So far, the focus has been on maximising profit rather than ensuring rigorous academic processes comparable to universities. To fulfil the moral purpose of higher education, institutions need to provide access and equitable education to all groups of students particularly those who are currently under-represented.. The current student recruitment practices in private higher education are aimed towards international markets and domestic students from high socio-economic backgrounds.

To improve the brand and reputation of Australian higher education, government needs to implement rigorous processes for the registration, accreditation, and performance reporting and quality audits of private higher education institutions. The current registration and accreditation managed by State/Territory governments are inconsistent, lacks rigour because of a reliance on reviewing documentation provided by institutions rather than listening to the views of students and staff (in case of re-registration) and lack of performance monitoring and improvement. The experience of the authors in working closely with private higher education suggest that internal capacity building within private higher education in quality assurance and improvement is needed with the view of developing a sustainable quality management system which adds value to the institution and the higher education sector.

In moving forward, the following is suggested which may be taken into account while developing national policies and guidelines for the registration, accreditation and quality audits of private colleges in Australia.

- Consistent use of the current National Protocols for Higher Education Approval Processes and National Code throughout Australia
- Merging the re-registration and external quality audits as a single process (currently they are two separate processes)
- Reducing the re-registration and external audits from five year cycle to three year cycle
- External quality audits and performance of private colleges should rank colleges in three key areas: *low risk, medium risk and high risk providers*
- The registration and accreditation of new courses should take into account the history of institutions in external audit outcomes, present quality systems with evidence on ongoing enhancement, the process should include the provision of student and staff voices and finally it should include the physical visit of the site with the view to assess the capacity and adequate resourcing and taking into account of the number of existing and projected students growth

- The formation of national student forum which has membership of students (domestic and international) from universities and private colleges to ensure that the voices of students are taken into account
- Consistent annual performance monitoring similar to those in universities including measures such as enrolments, retention, progression, equity indicators, student satisfaction measured via course experience questionnaire and graduate destination survey and other measures
- Benchmarking performing data between public and private higher education on agreed measures
- Strengthening the current external quality audit with more focus on: institutional governance, risk management (academic and financial risks), academic standards (including curriculum design and review, student evaluation of teaching and subject, student assessments practices, external assessment moderation, benchmarking, processes in place to enhance culture of research and inquiry, consistent use of policies and procedures, human resources and professional development of staff including sessional lecturers and alignment of various support services based on the growth)
- Setting targets for private colleges to ensure equitable education particularly for students who are unrepresented in higher education
- National benchmarking on the outcome of the proposed student experience survey between public and private higher education with transparent data collection methodology
- Possible national discussion on future growth of private colleges based on the needs analysis in each State and Territory
- Education and capacity building of private colleges in higher education quality assurance

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