

ONLINE LEARNING INITIATIVES IN E-DUCATING TESL STUDENT TEACHERS

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ABSTRACT

Incorporating online learning in campus-based courses is nothing new in a lot of educational institutions. In fact, an increasing number of educational institutions are recognizing the benefits of e-learning. E-learning is being utilized in a lot of educational programs worldwide (Harasim et al., 1995; Hiltz, 1986, 1990) either exclusively or as a supplementary educational aid. This paper reports on a study of e-learning application of a few TESL courses via a Learning Management System called Blackboard. It is focused on the students' perceptions of online learning. A total of 108 TESL student teachers across all levels of study were involved in this study. A questionnaire was developed to collect data on the perceptions of effectiveness on e-learning relative to that of the conventional classroom-based learning. The study also investigates the relationships between perception of online learning, respondents' demographic data, and experience with computers. The study yielded results consistent with previous research related to learning outcomes along several measures, particularly with regard to students' positive attitudes toward learning in an online environment. It was found that online learning helped to supplement the quality of teaching and learning. The students found that online learning was not only helpful, but also enjoyable and exciting. The writer concludes that the amalgamation of both online and face-to-face learning help to improve the quality of teaching and learning.

Introduction

Online learning is slowly but surely gaining momentum in the Malaysian educational scene. 'Traditional' universities are embracing online components for their courses, offering online courses, and even complete online degree programs. With the advantage of distance and time insensitivity for the learning process, there appears to be a growing sense that this form of teaching and learning has strong pedagogical merit. Research has shown that students do comparatively well in this new format. Studies and meta analyses (Kulik et al., 1991; Liao, 1992; Ester, 1995) suggest that computer-assisted instruction (CAI) can significantly improve learning, as evidenced by improved exam scores. Studies also indicate that computer-mediated communication (CMC) can be more effective in helping

motivated mature students master the material when compared to traditional means of instruction (Welsch, 1982; Quinn et al., 1983; Hiltz, 1986, 1990). Likewise, Ester (1995) in reviewing literature on CAI, found that CAI significantly improved the level of students' achievement. Other CAI researchers also support this finding (Brush, 1997; MacGregor, 1988; Kok, 1989).

While evidence is encouraging for proponents of online learning, the results are preliminary and there remains much to be learned. This paper discusses the outcome of a few TESL courses offered in mixed formats that alternated weekly between a traditional classroom-based and a web-based learning format. Amalgamating synchronous face-to-face learning with virtual learning in an academic course provides an exciting topic for investigation. What would the outcome be like if the learning situation and environment is combined between a mixed of face-to-face and virtual environment? This study examines the application of such an initiative at the School of Education and Social Development (SESD), Universiti Malaysia Sabah (UMS), where the researcher was among one of those staff who embraced the advanced technology paradigm in their course delivery. It focuses on the perceptions of students with regard to the effectiveness of the Learning Management System (LMS) as a supplementary instructional medium, compared to their perceptions of e-learning and face-to-face learning. The respondents' feelings and learning experience were also analysed. Factors that were considered include the student teachers' online experience such as prior computer experience, attitude toward technology, year of study (i.e. 1st, 2nd, or 3rd-year), and gender were also examined.

Background: Courses and Format of Instructional Delivery

The courses mentioned in the study were compulsory TESL program courses where all respondents were reading for their B.Ed TESL degree. Year 1 respondents took *The Teaching of Reading Skills* course; Year 2 students followed the *Second Language Acquisition* course, and Year 3 students pursued the *Materials Development* course. The researcher conducted all these courses over a semester using the mixed format of online learning and face-to-face learning.

These courses have been traditionally offered using the 'traditional' format of lecture and tutorial. In the traditional instructional paradigm, the course instructor and students interacted in the classroom. Students mastered course objectives by attending lectures, turning in assignments and passing tests. Typically, there were lectures and tutorial classes to be attended weekly, students read independently from a text, and they were tested through occasional paper-and-pencil tests.

In the advanced technology paradigm (mixed format of using traditional instructional system and Blackboard), the course instructor and students interacted in a number of flexible ways. Course materials were presented by the instructor in

a classroom occasionally while others were presented via a networked computer node that students could access from a location away from the classroom. The instructor might be physically present, but in many instances would be virtual. This happened in part during lectures, when the instructor made multimedia presentation to the group, but the interaction primarily took place outside a lecture setting. Students could interact directly with the primary text materials, seek help from their instructor through e-mail, participate in threaded discussion through Discussion Board, and took quizzes online without being physically present in the campus. Treaded discussions are the asynchronous posting of electronic messages by participants of a class or group in a continued conversation on topically organized questions and issues designated by the course lecturer (Raleigh, 2000).

Literature Review

In the Information and Communicative Technology (ICT) era, e-learning is one of the most important modes of learning. Universities and colleges worldwide embark on e-learning to save costs and ensure bigger student population coverage. Although e-learning is moving towards synchronous or live type of learning (Gartland, 2001), asynchronous learning such as the use of online discussion board should also be utilized. This is due to the fact that live learning such as Internet chatting (ICQ) and live conferencing can be quite costly and hindered by limited bandwidth. On the other hand, we should also not merely opt for passive learning using technology because limiting computers to the "delivery" of instructional programs leaves a student staring at a screen (Koehler, 1998). Hence, the idea of combining modern technology and learning through a seamless mix of just-in-time experiences, interactive learning tools, decision support mechanisms and simulations with traditional face-to-face learning were introduced.

A review of literature shows that there are a number of studies done comparing effectiveness of media types. Cheng et al. (1991) compared performance of graduate-level students enrolled in traditional and computer conferencing classrooms. Results indicated that there was no significant difference in overall course performance or attitude. In a study by Wegner et al. (1999), there appears to be no significant difference in test scores between the students enrolled in the traditional classroom and those enrolled in the online computer course despite the fact that the online computer course students did not attend a single on-campus lecture.

While research studies comparing achievement tend to show no significant difference, several studies indicate students have more positive attitudes about the course and their learning in an online computer course (Soo & Bonk, 1998; Sandercock & Shaw, 1999). Sandercock and others report that although there was no difference in academic assessment performance was noted in the online course, students indicated the use of computers had improved their technology skills and

increased their quality of learning. Students particularly like the flexibility an online course offers as well as the ability to control the pace of instruction (Berge, 1999; Edelson, 1998; Klemm, 1998)

What has been reviewed thus far are studies conducted in the West, in institutions that have embarked on online learning many years ahead of us. In our local scene, not many studies have been done and reported. This study is an attempt to fill this void, i.e. to investigate the context of implementation of a few academic courses conducted in a mixed of face-to-face and virtual environment in one of the local institutions of higher learning in Malaysia involving campus-based students.

Research Objectives

The objectives of this study are:

1. To examine respondents' perceptions of the effectiveness of the LMS System in supporting online learning.
2. To examine respondents' perceptions regarding online learning and face-to-face learning.
3. To examine the relationships between perception of online learning, respondents' demographic data, and experience with computers.
4. To examine the feelings and opinions of respondents learning with a web-based LMS system.

Methodology

Research Design

This study employs a descriptive correlation design using the survey approach. This research design was chosen as the study was exploratory in nature and the researcher was not involved in manipulating any of the variables. Data was collected using a questionnaire.

Sampling

The entire population of the TESL undergraduates students at SESD, UMS were involved in this study as they were the pioneer groups of student teachers to be introduced to this innovative online and face-to-face learning system. The researcher

was the course instructor for these courses for the entire 1st year, 2nd year, and 3rd year-groups. A total of 165 questionnaires were distributed to all TESL students from Year 1 to Year 3. From these 107 were returned and processed, representing a return rate of 64.8%. The breakdown of the respondents' demographic characteristics as per year of study, gender and age group are shown:

Table1: Number of respondents and their year of study

	Frequency	Percent
First year	48	44.9
Second Year	33	30.8
Third Year	26	24.3
Total	107	100.0

Table 2: Number of respondents according to their gender

	Frequency	Percent
Male	26	24.3
Female	81	75.7
Total	107	100.0

As shown in Tables 1 and 2, most respondents were first-year (44.9%) and second-year (30.8%) students, of which 81 percent were female and 26 percent male.

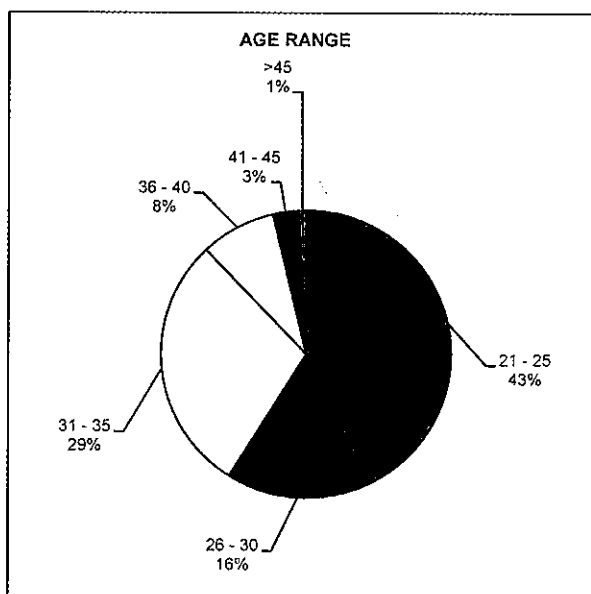


Figure 1: Pie chart showing the range of ages of respondents

As Figure 1 indicates, the 21-25 year-old group (43%) represented the largest group of respondents, followed by 31-35 year-old (29%), 26-30 year-old (16%), 36-40 year-old, 41-45 year-old (3%), and the 45 year-old and above group (1%) respectively. Thus, based on the respondents' age, a large majority of the respondents (88%) are those who are below 35 years of age.

Instrumentation

Instrument

This study utilized a self-administered questionnaire for data elicitation. There were two types of items designed, one, which aimed at eliciting factual information such as demography, experiences with computer, equipment access; and the other aimed at eliciting respondents' evaluation on the effectiveness of online learning compared with face-to-face learning via 30 four-point Likert scale items and four open-ended items. There were five main components in the questionnaire. The first part (Section A) contains items to elicit demographic information of the respondents. The second part (Section B) consists of items to obtain information on the respondents' experience with computers. The third part (Section C) consists of items to find out the respondents' perception of access to equipment. The fourth part (Section D) contains items to elicit information on the access to the Internet. The fifth part (Section E) contains items to elicit opinion on program delivery and learning support technologies. The sixth (Section F) and final part consists of items to investigate perception of online learning and face-to-face learning.

To reduce the large number of variables into smaller sets of underlying factors that summarize the essential information contained in all the variables in the three sections on evaluation of the effectiveness of online learning compared to face-to-face learning, factor analysis using the Principal Axis Factoring (PAF) with Varimax Rotation was carried out. The data obtained from section D, E and F of the questionnaire (those that represented respondents' opinion of several issues related to online learning) are divided into the following dimensions:

Section D: Problem with Accessing the Internet

Factor analysis suggests that all items in this section represent only one factor, i.e. "problems related to Internet access". It confirms the construct of the design, i.e., to examine the respondents' opinion of the problems with Internet access. However, according to the results, this factor explains only approximately 40% of the total variance. To determine the reliability level of the analysis, alpha-cronbach consistency test was carried out on the factor extracted in the factor analysis. The

reliability coefficient obtained was 0.7525, which is relatively high, implying the instrument was consistent in measuring what it was purported to measure.

Section E: The Effectiveness of Program Delivery/Learning Support Technologies

Two factors were identified under Section E and the two factors represented approximately 47% of the total variance. Factor one was related to respondents' opinion of their satisfaction using the online learning mode, whereas factor two was related to respondents' opinion of the effectiveness of medium or machine or technologies that have been used in the online learning mode. Alpha-cronbach reliability coefficient for the former was 0.7838, whereas the latter had a coefficient value of 0.6517. Both values were relatively high; indicating that data obtained from those questions were quite reliable.

Section F: Comparison between Online Learning and Face-to-Face Learning

Section F, which contained 30 items aimed at eliciting the learner's perception of online learning and face-to-face learning, was reduced to eight different factors after carrying out Principle Axis Factoring (PAF). However, this study focused only on two of them, which had relatively high value in the factor matrix (> 0.4). These two factors represented approximately 34% of the total variance. Factor one concerned opinion on online learning while factor two concerned opinion on traditional face-to-face learning. The alpha-cronbach consistency coefficient for question items under factor one was 0.8923; while question items under factor two was 0.7091. Both values were relatively high, indicating that data obtained from those question items were highly reliable.

Data Collection and Analysis

The questionnaires were administered after the completion of Week 14, the last week of the semester. Questionnaires were given out at the end of the last lecture and students were encouraged to complete and return them to the researcher the following week. Data analysis was done using SPSS Version 11.5. Descriptive statistics and inference relevant to the data were used to discuss the findings.

Results and Discussion

Effectiveness of the usage of LMS in supporting online learning

Based on the analysis of the responses given by respondents on their opinion of the effectiveness of the LMS (Section E, items 1 & 2, i.e. The Effectiveness of

Blackboard Website and The Effectiveness of E-mail Exchange/Online Discussion Board), it can be concluded that the respondents generally felt that the LMS was effective for online learning. Table 3 below shows a summary of the findings.

Table 3: Mean analysis

	N	Mean		Std. Dev.	Var.
	Statistic	Statistic	Std. Error	Statistic	Statistic
Effectiveness of Blackboard website	107	3.05	6.5602	.68	.460
Effectiveness of E-mail exchange/online discussion board	107	3.05	6.8202	.71	.498

Note: Level of Responses: 1 = Not effective; 2 = Poor; 3 = Quite effective; 4 = Highly effective.

Both the means show an average value of 3.05, which imply that the respondents rated Blackboard as "quite effective". The values of standard deviation and variance as demonstrated show that most respondents had given their responses very close to the mean value. In other words, very few respondents had negative perceptions of the Blackboard system. Hence, it can be concluded that most respondents rated the Blackboard system as "quite effective".

Perception of students regarding online learning and face-to-face learning

To examine the perceptions of respondents regarding online learning and face-to-face learning, an analysis of means for the item contrasting online learning with face-to-face learning was carried out. Findings (see Table 4 below) based on mean comparison show that respondents generally concur that online learning was more effective than F2F learning. This can be seen in the mean recorded for each item, with each item surpassing the median of 2.5. Also, the standard deviation and variance shown are relatively small, implying that all respondents had given responses very close to the mean. In other words, almost all the respondents agreed that online learning was more effective than face-to-face learning.

Table 4: Mean analysis showing respondents' opinion of online learning versus face-to-face learning

	N	Mean		SD	Var.
	Stat.	Stat.	S. E.	Stat.	Stat.
Taking online courses is more convenient.	107	2.93	5.9802	.62	.382
The online classroom allows me to work at my own pace, time and place.	107	3.37	5.8702	.61	.368
I contribute more of my opinion in an online environment than in a regular class.	107	3.06	6.8802	.71	.506
Having the computerized conferencing system available provides better access to the lecturer(s).	107	2.90	5.8702	.61	.368
The fact that my assignment would be read by other learners increases my motivation to do a thorough job.	107	3.39	6.5802	.68	.463
Discussion via online discussion board supports social negotiation of ideas, providing multiple perspectives on any given topic.	107	3.27	5.8302	.60	.364
Through online learning I feel more involved in taking an active part in the program.	107	2.92	5.9602	.62	.380
I find the comments made by other students to be useful to me.	107	3.26	4.8502	.50	.252
I find reading the reviews or assignments of other students to be useful to me.	107	3.33	5.1802	.54	.287
I gained new skills through online learning.	107	3.36	5.6002	.58	.335
I find online learning to be a better learning experience than F2F learning.	107	2.58	7.0202	.73	.527
Online learning creates a more democratic environment for group interaction.	107	3.00	6.5102	.67	.453
I have more opportunity to participate in collaborative learning in online learning.	107	3.08	5.4302	.56	.315
I find the processes of writing and reflecting in online learning encourage higher level of learning and promotes clearer and more precise thinking.	107	3.15	5.1102	.53	.279
I find I have more control over my schedule and my learning through online learning.	107	2.82	6.6102	.68	.468
Online learning provides a greater sense of equal participation.	107	2.95	6.6902	.69	.479
I take more initiative in my own learning and development in online learning than I normally do in regular classes.	107	2.68	6.4502	.67	.445

Note: Level of responses - 1 = strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree

For clearer examination of the results shown in Table 4 above, the items which respondents had strong opinion of, were sorted and listed in descending order of importance, as reported in Table 5 below.

Table 5: Items favouring online learning listed in descending order rank based on mean analysis

Nos	Items	Mean
1	The fact that my assignment would be read by other learners increases my motivation to do a thorough job.	3.39
2	The online classroom allows me to work at my own pace, time and place.	3.37
3	I gained new skills through online learning.	3.36
4	I find reading the reviews or assignments of other students to be useful to me.	3.33
5	Discussion via online discussion board supports social negotiation of ideas, providing multiple perspectives on any given topic.	3.27
6	I find the comments made by other students to be useful to me.	3.26
7	I find the processes of writing and reflecting in online learning encourage higher level of learning and promotes clearer and more precise thinking.	3.15
8	I have more opportunity to participate in collaborative learning in online learning.	3.08
9	I contribute more of my opinion in an online environment than in a regular class.	3.06
10	Online learning creates a more democratic environment for group interaction.	3.00

Note: Level of responses – 1 = strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree

The element with the highest mean response is concerned with the increase in motivation to do a better job in their assignment. The higher level of readership and the presence of wider audience might have been the impetus for that motivation. The second highest mean response is related to the flexibility of learning. The third highest mean response relates to gaining new skills. The rest of the highest mean response are concerned with the sharing of information, social negotiation of ideas, thinking ability, collaborative learning, increase in active participation and a more democratic environment for learning. The findings resembled the responses that relate to learning outcomes reported by Spiceland and Hawkins (2002) in their study of the impact on learning of an asynchronous active learning course format in Memphis, USA, especially with regard to the top three elements of an increased in motivation, flexibility of study and gaining of new skills.

Having looked at the respondents' opinions on the effectiveness of the LMS in supporting online learning and their perceptions of online learning compared to

face-to-face learning, findings related to the respondents' perceptions toward the use of computers are presented next. Further analysis to determine whether all respondents gave the same rating regardless of their demographic background and experience with computers are also presented.

Respondents' perceptions toward the use of computers

Previous research shows that a learner's prior experience and skills in using computers has a direct effect on their evaluation of the success in online learning (Irani, 1998). This study similarly looks at the effects of learners' prior experience, knowledge, and skills toward the use of computers.

Table 6 below shows the findings of the respondents' perceptions toward the use of computers. Respondents were asked to record their feelings based on a list of descriptors which were dichotomously paired, such as dull versus exciting, discouraging versus fun, difficult versus easy, etc.

Table 6: Respondents' perceptions toward the use of computers

Frequency Valid %			Frequency Valid %		
Dull	2	1.9	Exciting	99	92.5
Discouraging	3	3.0	Fun	96	97.0
Difficult	19	20.4	Easy	74	79.6
Hindering	0	0.0	Helpful	100	100.0
Threatening	25	30.5	Unthreatening	57	69.5

Findings show that generally the respondents had positive feeling of using computer. Almost all the respondents mentioned that computer was exciting, fun and helpful to them. However, there were some who felt that using the computer could be difficult (19%) and threatening (30.5%) to them.

Relationship between respondents' demographic characteristics and experience with computers

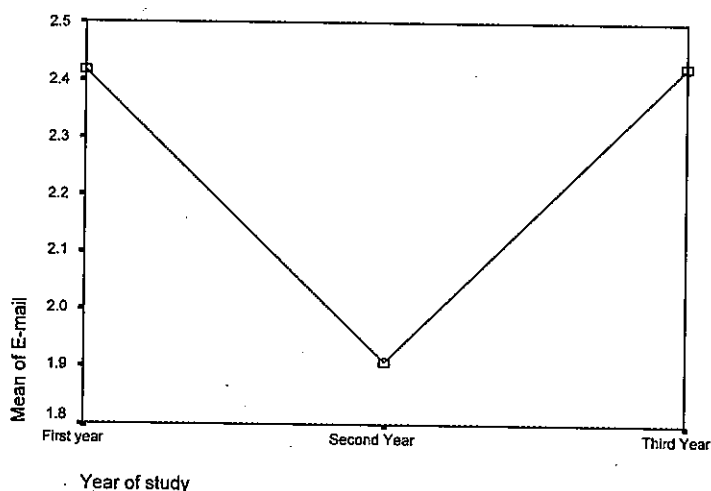
Equally important for the researcher to find out was the relationship between the respondents' demographic characteristics such as their year of study, gender and age with that of their experience with computers. To do that the Kruskal Wallis test was performed, as it was not permissible to perform a parametric test as the test assumptions were not fulfilled.

Table 7: Test statistics showing the relationship between demographic data and experience with computers

	Year of Study			Gender			Age		
	Chi-Square	df	Asy. Sig.	Chi-Square	df	Asy. Sig.	Chi-Square	df	Asy. Sig.
Personal computers	3.090	2	.213	2.151	1	.142	7.536	5	.184
E-mail	11.505	2	.003	.385	1	.535	5.267	5	.384
Word processors	6.389	2	.041	.414	1	.520	15.831	5	.007
Web browsers	.647	2	.724	.081	1	.776	5.485	5	.360

The results of Kruskal Wallis non-parametric test (see Table 7) show that there were significant relationships between year of study with respondents' experience in using e-mail and word processors. There was also a significant relationship between ages and respondents' experience in using word processors.

To find which groups have a significant difference in terms of experience with e-mail and word processors, a simple analysis on the mean plot was carried out. Figures 2, 3 and 4 below show the mean plot graphs of the relationships.

**Figure 2: Mean plot contrasting year of study with use of e-mail**

Note: Level of responses: 1 = Beginner; 2 = Occasionally; 3 = Frequently

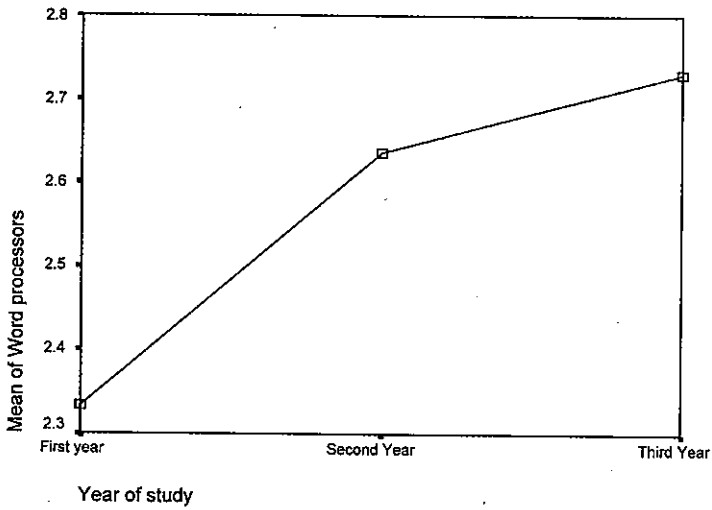


Figure 3: Mean plot contrasting year of study with use of computers

Note: Level of responses: 1 = Beginner; 2 = Occasionally; 3 = Frequently

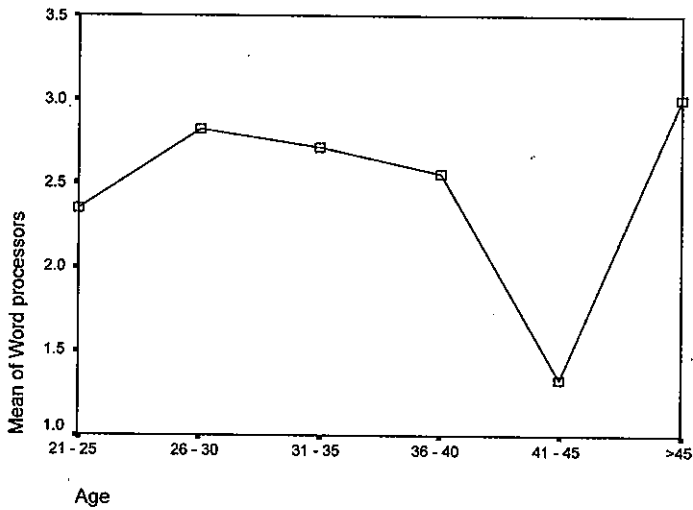


Figure 4: Mean plot contrasting age with use of computers

Note: Level of responses: 1 = Beginner; 2 = Occasionally; 3 = Frequently

Both of the mean plots shown in Figures 3 and 4 indicate that respondents from the 1st year of study and those between the ages of 41 to 45 had the least experience in using word processors as compared to the others. Nevertheless, it should be noted that for ages between 41 to 45, there were only 3 respondents, while those of the above-45 age group had only one respondent. Thus, a certain amount of caution should be exercised in reading too much into this data.

To determine whether there is a significant relationship between respondents' experience with computer and online learning

Previous research has shown that learners experience with computer also impinges on the success of implementing online learning. It is therefore desirable to investigate the extent to which the respondent's opinion of the effectiveness of online learning is affected by their experience in using computer. Since online learning at SESD is greatly influenced by the usage of the LMS, the respondents' perceptions of the effectiveness of the Blackboard System would be taken as the respondents' evaluation of online learning.

Table 8 below shows that none of the probability value indicates significance. This means that there is no significant interaction between respondents' experience with computers with that of online learning. In other words, the respondents' experience with computers did not influence their opinion of online learning.

Table 8: Relationship between respondents' experience with computers with that of online learning

No		The Effectiveness of the Blackboard Website			The Effectiveness of E-mail Exchange/Online Discussion Board		
		df	Statistic	Sig.	df	Statistic	Sig.
1	Experience with Personal Computers	2,104	0.615 ^a	0.543	2,104	1.889 ^a	0.156
2	Experience with E-mail	2,104	0.083 ^a	0.920	2,104	0.571 ^a	0.567
3	Experience with Word Processors	2,104	0.497 ^a	0.610	3	3.673 ^b	0.299 ^c
4	Experience with Web Browsers	2,104	1.485 ^a	0.231	2,104	0.223 ^a	0.800
5	Experience with Programming	2,104	0.418 ^a	0.659	2,104	0.601 ^a	0.550

^a Using the One-Way Univariate ANOVA. Not able to use the Two-Way Between Groups ANOVA or Multivariate ANOVA because the test assumptions were not fulfilled.

^b Using the Kruskal Wallis non-parametric test. Not able to use the parametric test because the test assumptions were not fulfilled.

^c Asymp. Sig.

To determine whether there is a significant relationship between respondents' demographic characteristics with that of online learning

Table 9 below shows that none of the F-probability value indicates significance and the results are confirmed by the effect size. This implies that there is no significant interaction between the respondents' demographic characteristics with that of online learning. In other words, regardless of the respondents' demographic characteristics all of them had the same opinion of online learning.

Table 9: Relationship between respondents' demographic characteristics with that of online learning: Tests of Between-Subjects Effects

Source	The Effectiveness of the Blackboard Website ^c				The Effectiveness of E-mail Exchange/Online Discussion Board ^d			
	df	F	Sig.	Eta Squared	df	F	Sig.	Eta Squared
Corrected Model	16	.650	.834	.104	16	.543	.916	.088
Intercept	1	552.406	.000	.860	1	528.941	.000	.855
Year of study	2	1.351	.264	.029	2	1.103	.336	.024
gender	1	2.471	.119	.027	1	.386	.536	.004
age	5	.511	.767	.028	5	.166	.974	.009
Year of study * gender	1	.545	.462	.006	1	.622	.432	.007
Year of study * age	2	.094	.910	.002	2	.013	.987	.000
gender * age	2	.667	.516	.015	2	.000	1.000	.000
Year of study* gender*age	1	.776	.381	.009	1	1.430	.235	.016

^a Using the Two-Way Between Groups Univariate ANOVA. Not able to perform the Multivariate. ANOVA because the test assumptions is not fulfilled.

^b Computed using alpha = .05

^c R Squared = .104 (Adjusted R Squared = -.056)

^d R Squared = .088 (Adjusted R Squared = -.074)

Having looked at the quantitative data, the next section proceeds to analyze and discuss some of the comments made by the respondents with regard to the open-ended section of the questionnaire.

Respondents' open-ended responses with regard to learning with a web-based LMS system

With regard to the respondents' open-ended responses about their learning experiences with the LMS, both positive and negative remarks were noted.

Following that, the remarks were thematically analyzed in order to derive helpful sub-headings. Some of these remarks are quoted in verbatim below to maintain the essence of their opinions.

Based on the positive remarks, it can be said that the majority of the students enjoyed learning through the online mode. Cognitively, almost all the students acknowledged that the asynchronous forums gave them the opportunity to reflect on the discussion and plan their input, thereby making for a more reasoned and in-depth contribution.

Intellectual benefits

The online tasks and tutorial were new to me but I found them interesting, learnable, time saving and challenging. I have learned something new, which I have never learnt before.

Online discussion also seems to have an effect on them socially and emotionally. Quite a number of students mentioned that they were more encouraged to give their opinions as the aura of anonymity gave them the courage to speak out and to be heard. A number of students also mentioned that emotionally they felt 'comfortable' and 'at ease' using the Blackboard system.

Social benefits

Conferencing online is a good way to share ideas with friends. We can also contribute our ideas, as not all people like to talk in front of the class. In this way other students can also share their points of view.

Emotional benefits

I like online tutorial very much as I can participate freely without shyness and it really helps when I can learn from others and can share at the same time.

As for perceptions of the shortcomings of the LMS learning experience, a number of themes were likewise inductively derived. Among the themes derived were themes such as immediate feedback; logistical problems; improper moderation; and absence of pre-training. Thus for example, the following remarks highlight their dissatisfaction with feedback, logistics, and moderation of the LMS:

Absence of immediate feedback

Online tutorials are very much welcomed but I still prefer the traditional 'face-to-face' tutorial. Discussions can be done on the spot and any questions about certain topics can be posed and explored together with the lecturer and friends.

Logistical problems

The online tutorial is something new and it gave us quite a run for our money as not everyone has a computer to log on immediately as required. Some of us need to queue up at the library to wait for our turn to use the computer.

Lack of proper moderations

My only criticism of the online tutorial/assignment is that the home menu can get a bit confusing. It is not clear, which topics are assignments given by the lecturer and which are private discussions (sub-threads) started by some of our friends.

Besides the aforementioned dissatisfaction, the respondents also felt that the course instructor ought to empathize more with their problems, especially their inability to log online from their respective hall of residence or homes. They felt that the two-week deadline for submission for each online forum was too short as many of them were busy with other tutorial tasks. A number of them also highlighted the difficulties of gaining access to networked computers in the campus. Having discussed the findings, the next section summarizes the overall findings of the study and outlines recommendations to further improve teaching and learning via the LMS.

Summary of Findings

On the whole, the study suggests that online learning is favoured and that students generally had positive experiences learning in an advanced technology paradigm. However, caution ought to be exercised in trying to make generalizations beyond the scope of this study. This is because this study did not address many other factors such as gender differences, learners' readiness and motivation; software, and ICT infrastructure. Future research will be needed to determine whether or not these preliminary findings hold true in other contexts. Nevertheless, on the whole the data thus far reveal that the respondents rated the LMS as "quite effective" in

supporting online learning. Likewise, the respondents also seemingly had positive feelings about using the computer and the corresponding LMS. It can also be surmised that a number of respondents found that using the computers and LMS was exciting, fun and helpful to them.

In overall terms, the respondents generally agreed that online learning was more effective compared to face-to-face learning. The element of online learning that were deemed useful were motivation, flexibility of learning, gaining new skills, the sharing of information, social negotiation of ideas, thinking ability, collaborative learning, active learning, and a more democratic environment for learning. The respondents also generally felt that the advanced technology paradigm had more positive than negative effects on their learning process.

However, there were also a number of respondents who felt that using computers could be difficult and threatening. This was discussed in the earlier mentioned data that there was a significant relationship between year of study with respondents' experience in using e-mail and word processors. There was also a significant relationship between ages and respondents' experience in using word processors. However, there were no significant interactions between respondents' experience with computers and that of online learning. Also, there was no significant interaction between the respondents' demographic characteristics with that of online learning

Recommendations to Improve Teaching and Learning Via LMS

The initiatives of incorporating online learning in campus-based courses have not been entirely without problems. In fact the researcher faced numerous challenges. Based on the lessons learnt, a number of recommendations are thus offered for any teacher or course developer interested to explore teaching and learning using a mixed mode of traditional classroom and virtual learning. For a start, it seems that a useful starting point is to explain in the course outline the level of emphasis on the use of electronic communication. Next, it seems important that the teacher should try to familiarize learners with the new virtual learning system before using it as an assessment mode for online contribution. To do that, the teacher may need to schedule in appropriate time slots to introduce and train students to use the online system. In addition to that, learners should also be provided with a clear guideline pertaining to issues of participation, reciprocity, and online 'netiquette'. For example, with regard to online participation, students should be encouraged to partake in online discussion board wherever possible. In terms of reciprocity, the teacher may want to clarify his/her expectations to the learners with regard to the degree of participation, such as the extent in which learners are required to post their contribution and response to queries from course members. Likewise, the teacher should also attempt to discuss what practices are desirable and what ought to be avoided with regard to online learning to maintain a harmonious online environment.

Conclusion

This study of amalgamating a mix of both traditional and virtual instructional delivery of program courses and the process of investigating the context of implementation has provided an interesting paradigm to teachers. Traditional classroom-based teaching paradigm still is and will continue to be an important feature in university teaching, as demonstrated in some of the responses shown earlier. But in an era where ICT is gaining momentum and online learning is gaining prominence, the application of alternative instructional mode such as the LMS, seemed timely and worthwhile. Online learning seems to be a viable alternative to the traditional classroom paradigm. Incorporating the LMS as a supplementary teaching and learning tool certainly appears to offer a broader range of flexible learning strategies, particularly in terms of student interaction with both the teaching materials and with each other. It is certainly possible to strengthen the intellectual community by extending classes from the classroom to cyberspace. Indeed, combining both online and face-to-face learning improves the quality of teaching and learning.

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