International Journal of Engineering & Technology, 7 (3.25) (2018) 201-204

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Students' Perceptions of the Use of Asynchronous Discussion Forums, Quizzes, and Uploaded Resources

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Abstract

This research inspects students' perceptions of the utilisation of asynchronous discussion forums, quizzes, and uploaded resources in platform CIDOS LMS among polytechnic students. There has been an expansion in the utilisation of LMS in many levels of education in polytechnic institutions. CIDOS LMS has variety tools examples assignments, video, scorm, and tutorial. Purposive sampling was used to choose the research participants for this study. The participants consisted of 60 diploma students from Polytechnic Sultan Ibrahim who are enrolled in a Mathematics course. The Cronbach's alpha of the instruments is 0.899. The questionnaire was divided into four categories. The categories addressed students' perceptions of CIDOS LMS tools, namely the discussion forums, quizzes, and the utilisation of uploaded resources. Likert scale rated from strongly disagree to strongly agree. All the data were analysed using IBM Statistical to obtain the percentages, frequencies, means, standard deviations, independent sample t-test, and Pearson correlation. The results of this study show that the practice of CIDOS LMS among engineering students at Polytechnic Sultan Ibrahim is at a high level during the learning process. Further research would explore the educators' need to figure out the best ways in CIDOS LMS to engage students as the millennial generation continues to dominate the workforce.

Keywords: *Asynchronous Discussion Forums; Quizzes; Uploaded Resources; Polytechnic; CIDOS LMS.*

1. Introduction

In polytechnic, an e-learning activity in blended learning using LMS is known as CIDOS LMS. Previous studies have reported that the use of LMS has grown exponentially and it is becoming ubiquitous in current higher education [1]. LMS supports face-to-face education and enables enhanced communication and interaction among instructors and students [2]. [3] stated that all teachers must be digitally literate with the present technology and only then can they work together with developers to create change. The LMS includes learning tools, assessment tools, and support tools [4].

Asynchronously indicates to the way that the discussions occur over a period of time with members signing on at various times, as per their own comfort, and contributing posts to the discussion [5]. They provide a platform for collaborative and interactive learning [6], making the learning and education procedure easy in the distance education world [7]. LMS discussion forums make for easy monitoring and commenting on other groups' processes and files [8] in which sending and receiving of materials are not delivered simultaneously [9]. [10] showed that teachers and students can post messages to each other and keep track of individual discussions for an effective group. The educators who is effectively engaged in checking, assessing, and giving input with respect to student can gather important experiences into the different needs of students in each section of a course [11].

[12] indicated that customised e-quizzes teach and assess the student according to the student's abilities. Moreover, the frequency of quizzes helps students to stay focused, study more, be more engaged with the subject [13], increase engagement, improve understanding [14], and stay [15]. Online quizzes may be of specific value given their capacity to connect with students during content dissemination [16]. [3] stated that with online quizzes, students can identify the areas that they will need to review and questions that will give a very useful constant feedback on student answers. Several quizzes are available for the participants for self-assessment [17].

[18] investigated the multimedia resources and interactive tasks that have contributed to developing their independent and collaborative learning skills. The use of the physical space and material resources is able to engage students [19]. [20] demonstrated that the LMS affords functionality to follow or trace student activities and capture data sets to help improve the learning experience. The proficiency of the LMS depends on how effectively the users can gets to its multi-faceted benefits when collaborating with it [21] The functions of the LMS can make for interactive collaboration [22]. The significance of the LMS interface designs augment the utilisation and benefit of learning resources, the perceived value of assessment functions working successfully in online systems, and the development of elective types of communication and collaboration [23]. [24] pointed out that he LMS has much potential to transform lecturers' practices with regard to teaching. It was found that most respondents have used the LMS at 71.6% [25].

Computer-mediated communication tools like discussion forums provide ways for learners to interact [26]. [27] noted that such

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forums would provide opportunities to other students and their instructor to give comments and support one another, thus strengthening learner-learner and learner-instructor interactions. When online discussion forums are effectively facilitated, they can foster inclusion and serve as a democratising force, allowing all voices to become part of the conversation, even those students who tend to remain silent in a face-to-face class because they feel shy or anxious [28]. Discussion boards, virtual chat rooms, and instant messages provide forums [29] for questioning [30].

2. Literature Review

[31] discovered quizzes were used to help determine the mastery of content. Quizzes are relatively contemporaneous with other learning tools that require students to "retrieve" knowledge [32]. [33] posited that students were given frequent quizzes to provide information to the professor about how well students understood the course material. [34] mentioned moderator analyses found that quizzes positively affected the effectiveness and attractiveness of blended learning. They were able to help teachers to deliver learning materials but also at the same time track students' performance and participation [35].

For example, if students had difficulty with quizzes or answered quickly and did not read the answers, and interviews showed that students were not interested or did not like the delivery or understand the delivery of the content, then the teaching method for the next lesson was changed [31]. [32] discussed that students taking longer quizzes suffered from survey fatigue and ceased to engage in the learning activity seriously. In addition, quizzes replaced the application of certain core techniques [36]. Quizzes are used to inform students about their learning achievement [37]. Online quizzes made available to the students each week to overcome the barrier of students often do not raise questions or indicate their challenges in understanding certain concepts [38]. Moreover, it is easier for the lecturer to create, monitor, mark, and provide feedback to students online [39-40]. A.

Previous research has shown that 85% of them indicated that accessing project resources on demand was very useful [41]. All respondents indicated that they would likely use web-based resources as tools for increasing course content understanding [42]. Students' engagement in the utilisation and use of the different assets in blended learning demonstrated the great utilisation of the highlights and students were happy with them [43]. (K

3. Research Question

The following research questions guided this study:

3.1 Are there any significant differences of student perceptions of the use of asynchronous discussion forums, quizzes, and uploaded resources in CIDOS LMS?
3.2 Are there any significant differences between gender for student perceptions of the use of asynchronous discussion forums, quizzes, and uploaded resources in CIDOS LMS?
3.3 Are there any significant differences between CIDOS LMS towards gender?

4. Objectives of the Study

This research was intended to explore student perceptions of the use of asynchronous discussion forums, quizzes, and uploaded resources. This study aim to examine the utilisation of tools in CIDOS LMS.

5. Methodology

A total of 60 respondents were selected as a sample consisting of lecturers in the engineering department. The population of the study is from Polytechnic Sultan Ibrahim. For the purposes of this study, the researchers used the questionnaire by [44] as an instrument. The questionnaire is divided into four parts, namely A, B, C, and D. Part A consists of two questions regarding the respondents' background information. Part B contains questions that will

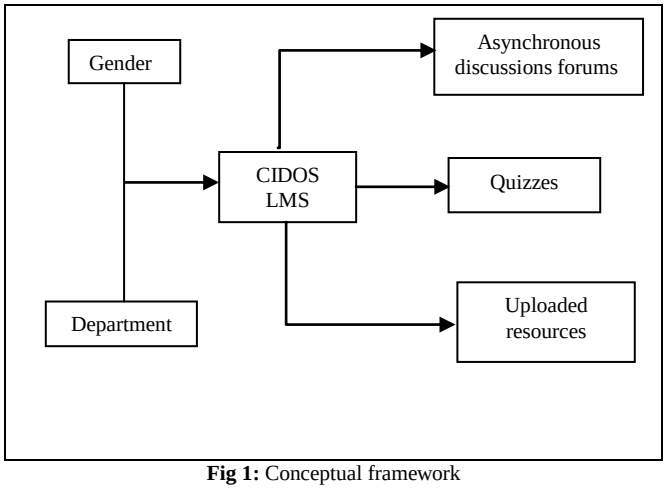


Fig 1: Conceptual framework

assess the asynchronous discussion forums and quizzes while part C is about uploaded resources. For parts B, C, and D in the questionnaire, a Likert scale of 4 points were used; 1-strongly disagree, 2-disagree, 3-agree, 4-strongly agree. Data were analysed using IBM statistical for determining the average mean score, standard deviation, t-test, Pearson correlations, and independent sample t-test and to look for differences in the desired aspect.

6. Findings

In terms of frequency of respondents by gender, the majority of respondents (n = 35) are male (58.3%), while 41.7% (n = 25) are female respondents as presented in Table 1. For departments, 61.7% are from the Department of Mechanical Engineering and 38.3% are from the Department of Electrical Engineering.

Table 1: Demographic Information about the Participants

Variables		Frequency	Percent
Gender	Male	35	58.3
	Female	25	41.7
Department	JKM	37	61.7
	JKE	23	38.3

Table 2 provides the mean, standard deviation, and interpretation for the asynchronous discussion forums. From the analysis, it shows that the utilisation of LMS from the asynchronous discussion forums construct is at a high level with the mean of 3.25 (SD = 0.52508). The analysis show that the highest mean value is for item F3, 3.40 (SD = 0.616), which is students are ready to make speculations regarding issues being examined and make sensible conclusions. Mean value is 2.85 (SD = 0.988), which is the lowest mean for item F7 where students are bothered to take an interest in any action identified with the discussion forum for getting course grades.

Table 2: Mean, Standard Deviation and Interpretation for Asynchronous Discussion Forums Constructs

Item	Mean	Std. Deviation	Interpretation
F1	3.32	.676	High
F2	3.35	.709	High
F3	3.40	.616	High
F4	3.37	.637	High
F5	3.07	.899	High

F6	3.42	.645	High
F7	2.85	.988	Mod-erate
F8	3.22	.904	High
Total Mean	3.25	.525	High

As shown in Table 3, the results of the descriptive analysis show that the utilisation of LMS from the quizzes construct among students is high (mean=3.1, SD=. 567). The analysis shows that item Q4 has the highest mean, which is the tasks in a quiz encourage to tackle issues identified with what the students realise with the mean value of 3.38 (SD = .640). Item Q7 with mean
value is 2.63 (SD=1.025) where the computer feedback students get from the quiz is more useful than the input given by the lecturers is the lowest mean.

Table 3: Mean, Standard Deviation and Interpretation for Quizzes Constructs

Item	Mean	Std. Deviation	Interpretation
Q1	3.02	.911	High
Q2	3.13	.812	High
Q3	3.38	.640	High
Q4	3.48	.676	High
Q5	3.22	.739	High
Q6	2.90	1.037	Moderate
Q7	2.63	1.025	Moderate
Q8	3.13	.833	High
Total Mean	3.11	0.567	High

The mean value and the standard deviation level of uploaded resources constructs in the LMS as presented in Table 4. From the analysis, it was found that the level of uploaded resources is at a high level with the mean score of 3.16 (SD = 0.598). The result of the analysis shows that the highest mean value is for the U4 item, which is the resources helped to solve issues identified with the course with the mean value of 3.37 (SD = 0.637). The lowest mean value is 2.63 (SP = 1.025), which is for the U2 item where the resources did not offer assistance accomplish the goals of the course.

Table 4: Mean, Standard Deviation and Interpretation for Uploaded Resources Constructs

Item	Mean	Std. Deviation	Interpretation
U1	3.35	.633	High
U2	2.63	1.025	Moderate
U3	3.28	.666	High
U4	3.37	.637	High
Total Mean	3.16	.598	High

T-tests were used to compare the mean difference between genders. The t-test results are shown in **Error! Reference source not found.** and

Table 6. The analysis was carried out to see whether there are significant mean differences between male and female students for each construct (asynchronous discussion forums, quizzes, and uploaded resources). The summary of statistical test results shows that there is no significant difference in the elements of the forum (p = .222) and quiz (p = .549) between male and female students. However, there is a significant difference in uploaded resources between gender (p = .029).

Table 5: The T-Test Compares the Mean of LMS Constructs to Gender

Variables	Gender	N	Mean	Std. Deviation	Std. Error Mean
Forum	Male	35	3.3189	.49929	.08440
	Female	25	3.1500	.55434	.11087
Quiz	Male	35	3.1500	.60391	.10208
	Female	25	3.0600	.51931	.10386
Uploaded	Male	35	3.3000	.55836	.09438
Resources	Female	25	2.9600	.60673	.12135

Table 6: T-test Analysis

Variables	Sig.	t	df	Sig. (2-tailed)
Forum	.681	1.234	58	.222
Quiz	.064	.603	58	.549
Uploaded Resources	.856	2.243	58	.029

A Pearson's correlation was computed on the total score of each construct. Using SPSS, the relationship was computed, and as seen in Table 7, there was a significant correlation between the three constructs of the LMS.

Table 7: Pearson Correlations Between Asynchronous Discussion Forums, Quizzes, and Uploaded Resources

Variables		Forum	Quiz	Uploaded
Forum	Pearson Correlation	1	.812**	.786**
	Sig. (2-tailed)		.000	.000
Quiz	Pearson Correlation	.812**	1	.858**
	Sig. (2-tailed)	.000		.000
Uploaded Resources	Pearson Correlation	.786**	.858**	1
	Sig. (2-tailed)	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).				

An independent sample t-test discovered the impact of gender on LMS as presented in Table 8. The t-test result created a non-significant result, demonstrating that there is no difference in LMS based on gender.

Table 08. Independent Sample T-Test LMS Towards Gender

	Gender	N	Mean	SD	SE Mean
CIDOS LMS	Male	35	3.2218	.51911	.08775
	Female	25	3.0283	.52947	.10589

		F	Sig.	t	df	Sig. (2- tailed)
CIDOS LMS	Equal variances assumed	.594	.444	1.411	58	.164
	Equal variances not assumed			1.407	51.225	.166

7. Conclusion

The findings show that the practice of LMS for engineering students at Polytechnic Sultan Ibrahim is at a high level in the learning process. It is a positive sign that students have practiced the CIDOS LMS during the teaching and learning process. Further analysis showed that the asynchronous discussion forum constructs have the highest mean value compared to others. These findings further support the idea of [45] in which meaningful use of the platform and peer-to-peer learning could be promoted by introducing collaborative learning activities utilising the discussion forums. It was shown that uploaded resources followed by quizzes are also high. Consistent with the findings by [46], it was found that active students performed better in the quizzes and examinations compared to the less active students. There is no uncertainty in saying that students' concern is in uploaded resources. With the emphasis on the benefits of the LMS, educators can make a variety of quizzes online that can attract students. The LMS could possibly contribute to the increment of the institutional reputation, enhance the nature of teaching, and give adaptability in students' life-long learning. Based on the research, it was found that there was no difference in LMS engagement based on gender. Further research might explore educators' need to figure out the

best variety of ways in the LMS to engage students of the millennial generation to continue to dominate the workforce.

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