

Evaluating Students' Learning Experiences Using Course Management System in a Blended Learning

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Abstract— One of the major software used in today's classroom are Course Management Systems (CMS). There is currently little research regarding the learning experience of students using CMS like Moodle in a blended learning environment. Effective learning environments give students a chance to learn better and faster. Understanding the students' learning experience in a blended course using a CMS is the first step to determine how to best engage students. It assumes that good learning environments are achieved through three factors which are Cognitive Presence, Teaching Presence, and Social Presence. This study used a set of questionnaire to evaluate students' learning experience for 107 students in blended learning. Correlation analysis has been used to find the relationship between Cognitive Presence, Teaching Presence, Social Presence and learning experience of students who use CMS in blended learning. The findings of this research study show that there is a significant correlation among Cognitive Presence, Teaching Presence, Social Presence and the overall learning experience using Moodle in blended learning. However, the level of Social Presence is lower in comparison with Teaching Presence and Cognitive Presence.

Keywords— *blended learning; cognitive presence; course management systems; social presence, teaching presence*

I. INTRODUCTION

Over the past decade, there has been a rapid growth in the number of blended learning courses where some online activities replaced face-to-face teaching and learning. One of the major applications in today's classroom is Course Management Systems (CMS) for example Moodle, BlackBoard and WebCT. A CMS is a software program or integrated platform that contains a series of web-based tools to support a number of activities and course management procedure [1]. They can provide different learning tools such as forum, blog, messaging, chat, and file sharing [2,3]. Many lecturers choose a blended approach by utilizing a CMS as a tool to deliver course materials to students in addition to traditional teaching environments and online learning. This teaching method is called 'blended learning' and thus the courses are called 'hybrid courses' [4].

Many online instructors are in the hope of improving student's participation and usage of the CMS. Increase in students' participation in online course causes of increased learning [5]. Effective learning environments give students a

chance to learn better and faster. Understanding how students participate in an online course is the first step to determine how to best engage students [5]. In order to support improvement in the learner's subject matter and learning, the CMS in e-learning environments should be designed to provide different learning styles, prior knowledge, and self-regulation skills [6]. Konstantinidis, Papadopoulos, Tsiatsos and Demetriadis [7] implemented Moodle as a single system, which would be easy to operate, maintain, update, and would cater to the variety of instructor and student needs.

A critical community of learners is composed of students and lecturers interacting with the specific purposes of constructing, understanding, facilitating and developing capabilities that lead to further learning [8]. The Community of Inquiry (CoI) model provides a comprehensive theoretical model that can inform both research on online learning and the practice of online instruction [9]. This model has been developed by Garrison, Anderson, and Archer in 2000 as a research tool for e-learning. It assumes that good learning environments are achieved through three factors which are Cognitive Presence, Teaching Presence, and Social Presence [9,10,11]. In order to sustain and create a collaborative CoI, the interactive effects of each of the presences must be understood. The CoI's model provides a theoretical model that can inform both researches on online and blended learning. Fig.1 shows CoI model.

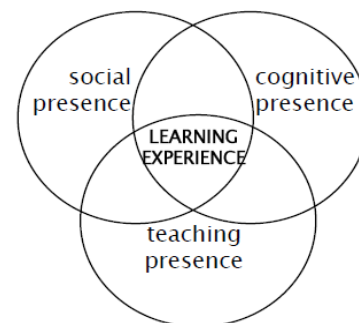


Fig. 1. The CoI model

Cognitive Presence is described as the construction, exploration, resolution, and confirmation of understanding through collaboration and reflection in a CoI. It refers to learners' construction and confirmation of meaning through discourse and sustained reflection [12,13]. The Teaching Presence is a more reliable predictor of effective cognitive learning than whether students felt close to each other [5]. Teaching Presence consists of subject matter expertise, the management and design of learning and the facilitation of active learning [9]. The instructor activates in online learning are creating lecturer notes and PowerPoint slide presentations onto the course site, preparing personal insights into the course material, developing video/audio mini-lectures, creating a desirable schedule for group activities and individuals, and preparing guidelines on how to use the medium effectively. Social Presence is defined as the ability to establish personal and purposeful relationships. Meanwhile, Social Presence refers to the degree to which learners feel emotionally and socially connected with others in an online environment [14,15,16]. Moreover, Social Presence is a critical attribute of a communication that can recognize the way people communicate and interact. To sum up, it is necessary and valuable to create CoI where reflection and interaction are sustained; where opinions can be critiqued and explored; and where the process of critical inquiry can be modelled.

II. METHODOLOGY

The researchers developed a set of questionnaire based on the 5-point Likert scale with responses ranging from Strongly Disagree (1) to Strongly Agree (5). The questionnaires were distributed among two classes of 107 respondents, consisting of first year undergraduate students in the Faculty of Management and Human Resource Development at Universiti Teknologi Malaysia (UTM). The CMS used in the courses that they enroll is Moodle. SPSS version 13.0 was used to analyze the data using correlation analysis between Cognitive, Teaching, Social Presences and the overall learning experience.

The questionnaire is based on the CoI model which includes all the three dimensions which are Cognitive Presence, Teaching Presence, and Social Presence. The instrument is developed according to the previous research [9]. To ensure the validity of the survey instrument in the context of this research study, three experts with experience in quantitative methods and scale development were evaluated its content validity. The reliability of survey usually describes as numerical coefficient and it can be from 0.00 to 1.00. If a test is completely reliable, the coefficient should be 1.00. Cronbach Alpha coefficient is a measure of squared correlation between observed scores and true scores. The value of Cronbach Alpha which is greater than .65 is recommended [17]. For this study, the questionnaire is reliable shown by the values of Cronbach Alpha for Cognitive Presence, Teaching Presence and Social Presence are $\alpha=.909$, $\alpha=.876$, and $\alpha=.921$ respectively.

For finding correlation between learning experience and each related dimension, the correlation test has been used. The following are hypotheses that are tested in this research study.

- H_{01} : There is no correlation (relationship) between Cognitive Presence and learning experience of students in blended learning.
- H_{11} : There is a correlation between Cognitive Presence and learning experience of students in blended learning.
- H_{02} : There is no correlation between Teaching Presence and learning experience of students in blended learning.
- H_{12} : There is a correlation between Teaching Presence and learning experience of students in blended learning.
- H_{03} : There is no correlation between Social Presence and learning experience of students in blended learning.
- H_{13} : There is a correlation between Social Presence and learning experience of students in blended learning.

The degree of association between two dimensions in each hypothesis is a number between -1 and +1. A positive degree shows that the two dimensions have a positive relationship. For instance, a large value of the first dimension tends to be associated with large values of the second dimension and a negative degree show that the two dimensions have a negative relationship. For instance, a large value of the first dimension tends to be associated with small values of the second dimension.

III. ANALYSIS AND DISCUSSIONS

The correlation analysis has been conducted to investigate correlation between Cognitive Presence, Teaching Presence, Social Presence and learning experience of respondents. As a result, each question will be tested for correlation using a parametric method known Pearson correlation in SPSS. Table 1 shows the summary of correlation analysis in SPSS.

TABLE I. THE SUMMARY OF CORRELATION ANALYSIS

Question	Dimension	Learning Experience	
		Pearson Correlation	Sig. (2-tailed)
Responsibility in group	Cognitive Presence	.813	.000
Meeting expectations		.789	.000
Increasing learning		.776	.000
Feeling motivated		.739	.000
Identifying variety of sources		.728	.000
Applying ideas		.699	.000
Piquing curiosity		.672	.000
Identifying new information		.603	.000
Expectations from instructor	Teaching Presence	.795	.000
Understanding course		.744	.000
Clarify thinking		.733	.000
Creating online community		.708	.000
Reflecting class progress		.627	.000
Engaging in discussion	Social Presence	.866	.000
Class community		.836	.000
Collaboration		.793	.000
Discussion in course topics		.770	.000
Individual impressions		.769	.000
Interaction		.731	.000
Strengthen relationship		.682	.000
Acknowledging point of view		.678	.000
Answer rising	.647	.000	

Table 1 shows all of the variables that are related to each dimension positively and significantly correlated with learning experience. On the other word, because of Sig < 0.05 is for all of the related questions to each dimension so the null hypothesis is rejected for all of the variables and there is significant correlation between each variable and learning experience. As a result, Cognitive Presence, Teaching Presence, and Social Presence are significantly and positively correlated with learning experience in Moodle.

The highest Pearson correlation value is .813 for responsibilities in group in Cognitive Presence, .795 for expectations from instructors in Teaching Presence, and .866 for engaging in discussion in Social Presence, while the lowest Pearson correlation value is .603 for identifying new information in Cognitive Presence, .627 for reflecting class progress in Teaching Presence, and .647 for answer rising in Social Presence. Fig. 2 shows the comparison of respondents' answers to the factors that effect on learning experience of respondents to Cognitive Presence, Teaching Presence, and Social Presence are compared.

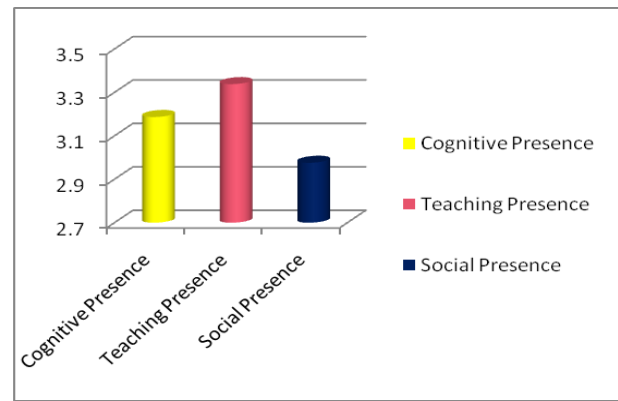


Fig. 2. The comparison of learning experience dimensions

It can be clearly seen that Moodle provides high quality of Teaching Presence. However, Social Presence has lowest position by using Moodle compared to other dimensions based on the collected data.

Although, there is a significant correlation between each related question to Cognitive Presence, Teaching Presence, Social Presence and the overall learning experience, around half of the respondents commented there is not good internet connection for using Moodle sometimes and there is a data base error in connecting to the system. Furthermore, 30% of the respondents believe that Moodle cannot support all of the learning features and applications so their lecturers use another website for collaborative activities. Moreover, 26% of the respondents mentioned the design of the website is not attractive for them and it is too formal.

IV. CONCLUSION

The goal of this research was to provide the readers with an overview of findings about learning experience of students in blended learning using Moodle, to reach this goal the authors have used a set of questionnaire for gathering data. Correlation analysis has been used to find the relationship between each dimension and overall learning experience of respondents. The results show that there is a significant and positive correlation among Cognitive Presence, Teaching Presence, Social Presence and the overall learning experience of respondents. The interpretation among Teaching Presence, Cognitive Presence and Social Presence shows Social Presence has the lowest level by using Moodle in comparison with other dimensions. Different researchers have tried different ways to establish social presence in online courses, for example, using text messaging, voice mail and etc. Therefore, different ways to improve social presence in CMS should be examined and compared with the results of this study for the future research. The limitation of this research study is that the respondents were 107 students in the Faculty of Management and Human Resource Development who need more IT training than other faculties. Another study that considers students from a technology-related faculty and uses a larger sample can be done. Meanwhile, the investigation of students' learning experience regarding different course design should be explored in future studies.

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