

# 13

## **ANALYSIS OF STUDENTS’ ONLINE LEARNING EXPERIENCES IN COURSE MANAGEMENT SYSTEM**

MarvaMirabolghasemi, NoorminshahA.Iahad

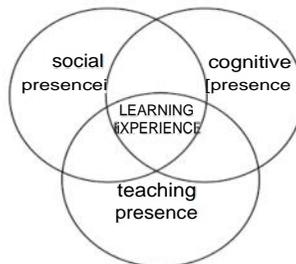
### **13.1 INTRODUCTION.**

It is clear that technology has continuously creates communication tools to facilitate many processes applied for teaching and learning. One of the major applications in today classroom is Course Management System (CMS) like Moodle, BlackBoard etc. 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 [15]. They can provide different learning tools such as forum, blog, messaging, chat, and file sharing [7,8]. Many lecturers choose a blended approach by utilizing CMS as a tool to deliver course materials to students. This teaching method is called ‘blended learning’ and the courses called ‘hybrid courses’ [2]. This course is the combination of traditional teaching environments and online learning.

Many online instructors are hoping for improvement in student’s participation. Increase in students’ participation in an online course leads to increment of students’ learning [16]. 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 [16]. In order to support improvement to learner’s subject

matter and learning strategy applications, the CMS in e-learning environments should be designed to provide different learning styles, prior knowledge, and self- regulation skills [17].

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 [3]. The community of inquiry's model provides comprehensive theoretical model that can inform both research on online learning and the practice of online instruction [10]. This model has been developed by Garrison, Anderson, and Archer in 2000 as a research tool in online learning. It assumes three factors which could facilitate good learning environments, and these factors are cognitive presence, teaching presence, and social presence [1, 3, 4, 9, 10]. Figure 13.1 shows the community of inquiry model.



**Figure 13.1** The community of inquiry's model

In Figure 13.1, cognitive presence is described as construction, exploration, resolution, and confirmation of understanding through collaboration and reflection in a community of inquiry. It refers to learners' construction and confirmation of meaning through discourse and sustained reflection [11, 12]. 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 [10]. Teaching involves activities such as creating lecture notes and Power point slides 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 [6, 14]. 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 a community of inquiry where reflection and interaction are sustained; where opinions can be critiqued and explored; and where the process of critical inquiry can be modelled.

## **13.2 METHODOLOGY**

Both quantitative and qualitative methods were adopted for evaluating online learning experience of students who use CMS. Questionnaires were developed for students and interviews were conducted with the students' lecturers. Meanwhile, Moodle was selected as the CMS for this study for the reason that it has high quality of learning applications in course management types and able to provide learning tools such as forum, blog, messaging, chat, and file sharing.

### **13.2.1 Questionnaire**

The researchers developed a set of questionnaire based on the 5-point Likert scale with the expected responses are from strongly disagree (1) until strongly agree (5). The questionnaires were distributed to 107 of undergraduate students who are in their first year and majoring in IT related subjects. Another condition for

choosing these undergraduate students as respondents was because they use Moodle as e-learning tool in their courses. The questionnaire was designed based on the community of inquiry model. As such, the questions in the questionnaire reflect the three dimensions as mentioned earlier. These dimensions are cognitive presence, teaching presence, and social presence. In order to confirm the structure of the model, this study used factor analysis [10].

### **13.2.1.1 Reliability of Questionnaire**

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. Moreover, for the most studies, greater than .65 is recommended [13].

Thus, Cronbach Alpha coefficient is estimated for three existed dimensions of the questionnaire. The first dimension or cognitive presence is  $\alpha=.909$ , the second dimension or teaching presence is  $\alpha=.876$ , the third dimension or teaching presence is  $\alpha=.921$ . As a result, the questionnaire is considered reliable.

### **13.2.1.2 Analysis of the Questionnaire**

For finding correlation between online learning experience and each related questions the correlation test has been used. The degree of association between two data groups is a number between -1 and +1. A positive degree shows that the two data groups have positive relationship, for instance large value of group one tend to be associated with large values of group 2. A negative degree shows that the two groups have negative relationship, for instance large values of group 1 tend to be associated with small values of group 2. The hypothesis in correlation analysis is:

- (a)  $H_0$  (Null hypothesis): There is no correlation between independent variable and dependent variable.
- (b)  $H_1$  (alternative hypothesis): There is correlation between independent variable and dependent variable.

The hypothesis can be checked by Sig. or P-Value. If Sig. < 0.05 then  $H_0$  is rejected and if Sig.>0.05 then  $H_0$  is not rejected [12].

### **13.2.2 Interview**

The interview with lecturers gives the researchers an opportunity to explore the current trend in using online learning among lecturers and the effectiveness of using it during lectures. Furthermore, the attitude of lecturers in using e-learning in their classes, the benefits of that, and the lack of current e-learning were also estimated. The interviews were conducted with six lecturers who teach IT related subjects.

## **13.3 RESULT**

After the distribution of the questionnaires to students and interviews with their lecturers, results obtained are analyzed and discussed. The discussion of data is based on survey results, interpretation of the data analysis, and interviews with lecturers.

### **13.3.1 The Results of Questionnaire**

A correlation analysis has been developed to investigate correlation between each related questions to dimensions and online learning experience of respondents. As a result, each question will be tested for correlation using a parametric method known Pearson correlation in SPSS. Table 13.1 shows the summary of correlation analysis in SPSS.

**Table 13.1** The summary of correlation analysis in SPSS

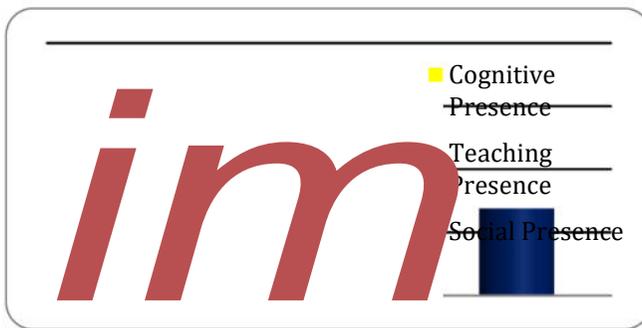
Question	Dimension	Online Learning Experience		
		Pearson Correlation	Sig. (2-tailed)	N
Responsibility in group	Cognitive Presence	.813	.000	107
Meeting expectations		.789	.000	107
Increasing learning		.776	.000	107
Feeling motivated		.739	.000	107
Identifying variety of sources		.728	.000	107
Applying ideas		.699	.000	107
Piquing curiosity		.672	.000	107
Identifying new information		.603	.000	107
Expectations from instructor	Teaching Presence	.795	.000	107
Understanding course		.744	.000	107
Clarify thinking		.733	.000	107
Creating online community		.708	.000	107
Reflecting class progress		.627	.000	107
Engaging in discussion	Social Presence	.866	.000	107
Class community		.836	.000	107
Collaboration		.793	.000	107

Discussion in course topics		.770	.000	107
Individual impressions		.769	.000	107
Interaction		.731	.000	107
Strengthen relationship		.682	.000	107
Acknowledging point of view		.678	.000	107
Answer rising		.647	.000	107

Table 13.1 shows all of the variables that are related to each dimension positively and significantly correlated with online learning experience. In other words, because of  $\text{Sig} < 0.05$  is for all of the related questions to each dimension, the null hypothesis is rejected for all of the variables and there is significant correlation between each variable and online learning experience. As a result, cognitive presence, teaching presence, and social presence are significantly and positively correlated with online learning experience in Moodle.

The highest Pearson correlation value is .813 for responsibilities in groups in cognitive presence, .795 for expectations from instructors in teaching presence, and .866 for engaging in discussion in social presence. 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. The correlation analysis showed that the order of correlation from highest to lowest for variables that affected online learning experience of students is as follows: responsibility in group (.813), meeting expectations (.789), increasing learning (.776), feeling motivated (.739), identifying variety of sources (.728), applying ideas (.699), piquing curiosity (.672), and identifying new information (.603) in cognitive presence, expectations from instructor (.795), understanding course (.744), clarify thinking

(.733), creating online community (.708), reflecting class progress (.627) in teaching presence, and engaging in discussion (.866), class community (.836), collaboration(.793), discussion in course topics (.770), distinct Individual impressions (.769), interaction (.731), strengthen relationship (.682), acknowledging point of view(.678), answer rising (.647) in social presence. The chart created by EXCEL as shown in Figure 2 depicts the comparison of respondents' answers to the three factors that effect on online learning experience of respondents. The three factors are cognitive presence, teaching presence, and social presence and the chart was created based on the data collected.



**Figure 13.2** Comparison of online learning experience dimensions

In the context of using Moodle, Figure 13.2 shows clearly that teaching presence gets the highest values. This result indicates that using Moodle provides high quality of teaching presence. However, social presence has the lowest position as compared to other dimensions.

Despite significant correlation between each related questions to cognitive presence, teaching presence, social presence and the overall online learning experience, around half of the respondents commented on the lack of internet connection when using Moodle. In addition to the internet connection problems, database error may sometimes occur while connecting to the system. Another 30% of the respondents believe that Moodle

cannot support all of the learning features and applications. This limitation has lead their lecturers use other websites features to for collaboration activities. In addition, 26% of the respondents mentioned the design of website is not attractive for them and it is too formal.

### **13.4 THE RESULT OF INTERVIEW**

The interviews with lecturers give the researchers an opportunity to understand the current trends of online learning usage among lecturers. The interviews were conducted with six lecturers who teach IT related subjects. This section highlights the key issues that were discovered through the interviews.

Findings from this case study, shows all lecturers use Moodle for different applications. They use Moodle for several times in a week and they believe that online learning can improve their students' position in academic world. In other word, they think that the effectiveness of their teaching in classes increases should they use online learning.

In the point of their views, the most important application tools in Moodle are class notes, messages, calendar and resources. However, some of the lecturers believe that Moodle cannot support all types of applications and they use some tools such as wiki or real time activity stream to improve students' performance in online activities.

### **13.5 CHAPTER SUMMARY**

The goal of this chapter is to provide readers with an overview of findings related to online learning experience of students in using CMS. In order to reach this goal, the authors used questionnaire and interview methods for data gathering. Correlation analysis has been performed to find correlation between each variables and overall online learning experience of respondents. The results

show that there is a significant and positive correlation between dimensions and the overall online learning experience of respondents. The interviews with lecturers offer opportunities to understand the current trends of using online learning among lecturers. The results of interviews show the usage of Moodle is high among lecturers and in the point of their views online learning can improve their students' learning. However, adding more features and opportunities for collaboration activities into the website were recommended by lecturers and their students.

## REFERENCES

- [1] Borsoto, C. B., Community of inquiry a precondition of higher learning in online journalism courses, *Asia Pacific Media Educator*, 2008. P.131-148.
- [2] Garnham, C., & Kaleta, R., Introduction to hybrid courses. *Teaching with Technology Today*, 2002.8(10).
- [3] Garrison, D. R., Anderson, T., & Archer, W., Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2000. 2(2-3):p.87-105.
- [4] Garrison D.R., Cleveland-Innes M., & Fung. T., Student Role adjustment in online communities of inquiry: Model and instrument validation. *Journal of Asynchronous Learning Network*, 2004.8(2): p.61 - 74.
- [5] Gorsky, P. & Blau, I., Online teaching effectiveness: a tale of two instructors. *International Review of Research in Open and Distance Learning*, 2009.10(3):p.1-27.
- [6] Gorsky, P., Caspi, A. Antonovsky, A., Blau, I. & Mansur, A., The Relationship between Academic Discipline and Dialogic Behavior in Open University Course Forums. *The International Review of Research in Open and Distance Learning*, 2010. 11(2): p.49-69.
- [7] Halse, M. L., & Mallinson, B. J., Investigating popular Internet applications as supporting e-learning technologies

- for teaching and learning with Generation Y, 2009.5(5), Retrieved March 20, 2010 from <http://ijedict.dec.uwi.edu/viewissue.php>.
- [8] Kevin, P. B., Lori B. H., & Bethany V. S., The Use of Alternative Social Networking Sites in Higher Educational Settings: A Case Study of the E-Learning Benefits of Ninin Education. *Journal of Interactive Online Learning*, 2010.9: p. 151-170.
- [9] Kovalik, C.L., & Hosler, K.A., Text messaging and the Community of Inquiry in online courses. *MERLOT Journal of Online Learning and Teaching*, 2010. 6(2): p.380-387.
- [10] Swan, K., Shea, P., Richardson, J., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B., Validating a measurement tool of presence in online communities of Inquiry. */E-Mentor/*, 2008. 2(24): p.1-12.
- [11] Nunez, D. & Blake, E., Cognitive presence as a unified Concept of virtual reality effectiveness. *Proceedings of AFRIGRAPH 2001*, 2001. P.115-118.
- [12] Park, C. L., Replicating the Use of a Cognitive Presence Measurement Tool. *Journal of Interactive Online Learning*, 2009. 8(2): p.101-114.
- [13] Rasli, A., *Data analysis and interpretation: a handbook for postgraduate social scientists*: Skudai, Johor: Penerbit Universiti Teknologi Malaysia. 2006.
- [14] Richardson, J., & K. Swan., Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning*, 2003.6 (1):p. 21-40.
- [15] Severson, A., *Faculty support required for the implementation of a new learning management system*. Thesis submitted to the Simon Fraser University for the degree of Master in Distributed Learning, 2004.
- [16] Virk, B., And A Balancing Act: Improving Student Online Discussion Participation. *International Journal of Instructional Technology & Distance Learning*, 2004. 1(6): p. 51-55.

- [17] Zimmerman, B. J., Becoming a self-regulated learner: An overview. *Theory into Practice*, 2002. 41(2), 64–70.