

Students' Learning Experiences towards the Use of Assessments in a Virtual Learning Environment (VLE)

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Abstract. This study is about student learning experiences towards the use of assessments in a virtual learning environment. Students' learning experiences are crucial in learning processes to achieve better learning outcomes. Students' learning experiences can be assessed by using the Community of Inquiry (COI) Framework. Assessment can be defined as the evaluation for the students' performance and abilities. This study involves the students to watch the pre-class lectures online. This study is quasi-experimental research which has divided the students into a control group and experimental group. The control group students watch the virtual micro-lectures with discussion while the experimental group students watch the virtual micro-lectures which integrated with assessments. Both groups watch the videos in different learning platform (Padlet/EDpuzzle) with different links. The data of the study are evaluated based on the Community of Inquiry Framework questionnaire and students' quiz. The results are mixed in terms of the questionnaire and the quiz results. In the overall result, students in the experimental group have gained better learning experiences in teaching presence, social presence and cognitive presence compare to the students in the control group. This study is significant for educators to create more effective online assessments that can enhance the students' learning.

Keywords: learning experiences, assessment, virtual learning environment, a community of inquiry framework

Introduction

Learning in the virtual learning environment has become popular nowadays especially in higher education. Several studies have supported that the rapid development in the virtual learning environment has become the learning strategy in education (Choy & Quek, 2016; Wilson & Stacey, 2004). Heaton-Shrestha, Edirisingha & Burke (2005) have described virtual learning environments are web-based digital technology that provides a variety of learning tools. Van Raaij & Schepers (2008) assert that the increasing use of virtual learning environment has encouraged the globalization of education in the cross borders of time and place. Several studies have been proven that assessment is essential in teaching and learning. Angus & Watson (2009) claim that assessment is essential in formal higher education. Besides, Baleni (2015) mentions that assessment is crucial because it has a strong effect on learning. As a result, the assessment can be integrated into a virtual learning environment.

Community of Inquiry (COI) is a popular framework which can be used in the online learning environment. Swan & Ice (2010) define the community of inquiry as the design of dynamic process model which used to define, describe and measure elements (teaching presence, cognitive presence, and social presence) supporting the development of online learning communities. In this study, Community of Inquiry (COI) framework which contains teaching presence, cognitive presence and social presence have been used to describe

the online and face-to-face learning environments (Garrison, Anderson, & Archer, 2000; Garrison & Arbaugh, 2007). Teaching presences is about design, facilitation and give needed and direct instruction, cognitive presence is about collaborate the knowledge in the constructivist learning environment, and the social presence is about how the students connect and communicate with the online community (Swan et al., 2008).

This research is to investigate student learning experiences towards the use of assessments in a virtual learning environment. There are five research objectives in this research: 1). To investigate students' learning experiences of teaching presence in a virtual learning environment, 2). To investigate students' learning experiences of social presence in a virtual learning environment, 3). To investigate students' learning experiences of cognitive presence in a virtual learning environment, 4). To investigate the relationship between students' learning experiences of teaching presence, social presence and cognitive presence in a virtual learning environment. 5). To investigate students' learning experiences of academic performance in a virtual learning environment.

Literature review

Assessment in Virtual Learning Environment (VLE)

Assessment can be integrated into a virtual learning environment for educational purposes. Many researchers

comment that assessments provided information about teaching effectiveness to faculty and to students about their performances and the ways to improve their learning (Carless Joughin, Mok, 2007; Gibbs 2006; Gibbs and Simpson 2005). Assessment can be embedded in pedagogy. This statement was consistent with the study of Gijbels, Dochy, Bossche, & Segers (2005). Crisp & Ward (2008) indicated that online formative assessment encouraged deeper learning and increased students' motivation. Sorensen & Takle (2005) and Vonderwell, Liang & Alderman (2007) explained that effective use of online formative assessment produced meaningful interactions between peers. Several studies agreed that online formative assessment able to motivate students to engage actively in the learning environment and regulated their studies (Chung, Shel, & Kaiser, 2006; Koh, 2008; Pachler, Daly, Mor, & Mellar, 2010; Wang, Wang, & Huang, 2008).

Micro-Lectures and assessment

Assessment is crucial in education. Assessment becomes the prominent activity in teaching and learning (Atkinson, & Lim, 2013; Ellis & Byrnes, 2006). McLaughlin et al. (2014) explained that micro-lectures gave an opportunity for the instructor to learn in an active learning environment which encouraged the students to learn and explore themselves with the clarification and explanation from the instructors. Additionally, Zhang & Xu (2015) discussed the use of quiz in the micro-lecture to guide the students to complete their tasks. Kundart (2012) also mentioned that the micro-lecture was integrated with assessment and students can view and complete the tasks at their own pace. Educause (2012) suggested that written follow-up assignments or activities able to embed in a micro-lecture to ensure that students understand the presented material.

Community of Inquiry (COI) in learning

Community of Inquiry (COI) has been used in an online learning environment. COI Framework consisted of three components: teaching presence, social presence, and cognitive presence. Garrison et al. (2000) described that the CoI framework as a communication and interaction framework to support the optimal learning process and builds on social-constructivist approaches to instruction and learning. Shea & Bidjerano (2010) pointed out that the CoI framework explained the knowledge construction based on social interaction, technology assistance, and instructional procedures in online collaborative environments. Besides that, Community of Inquiry (COI) aimed to promote active collaborative learning in the online environment (Cooper & Scriven, 2017). Garrison & Arbaugh (2007) stated that the COI framework is a useful theoretical framework and tool to study and design online learning experiences. Furthermore, Shin (2008) asserted that the fundamental assumption of the COI model yielded deep and meaningful learning environments in higher education to increase social interaction among students and teachers

either in face-to-face or online learning in higher education.

Method

This study was quasi-experimental research which divided the students into a control group and experimental group.

The study was conducted in one of the university in Penang, Malaysia. Random sampling was used as the selection of the samples in this study. They were the university undergraduates who enrolled in an ICT course.

The 52 samples were divided into a control group and experimental group. Both groups had the same micro-lectures every week but with different types of interaction towards the learning.

For the control group, students watched the online micro-lectures outside the class time before the next lesson in a learning platform (Padlet). Every week, the students needed to watch the micro-lectures and discuss in Padlet wall based on the questions given. Every student needed to express their ideas and understandings on the padlet wall. For the experimental group, the students watched the micro-lectures in EDpuzzle, and every micro-lecture was integrated with the assessments. Therefore, the students must answer all the questions in the micro-lectures which set by the instructor. The completion and result of each micro-lecture were shown and evaluated by the instructor.

The students' learning experiences questionnaire was adapted by Arbaugh (2008). There were two parts in this questionnaire. The first part in the students' learning experiences on teaching presence, cognitive presence and social presence that included in the five-level Likert scale questions that range from 1=strongly disagrees, 2=disagree, 3=neutral, 4=agree, 5=strongly agree.

The 34 items in first part of the questionnaire in the students' learning experiences questionnaire are based on the idea of Community of Inquiry (COI) Framework which comprises the three elements: teaching presence, cognitive presence, and social presence. The questionnaire was used to measure the students' learning experiences on (i) teaching presence, (ii) social presence, (iii) cognitive presence which included in the COI framework. The second part is the open-ended questions. This Cronbach's alpha was used to measure the reliability of the instrument.

Teaching Presence. I feel my instructor communicate clearly on the importance of the course topics. Social Presence. I feel a sense of belonging in the course by getting to know some of the course participants. Cognitive Presence. I feel that the problems highlighted in the issues related to the course had increased my interest.

There are the sample items from the instrument used. In each construct, teaching presence reliability score (0.89), social presence reliability score (0.88) and cognitive presence reliability score (0.87). Cronbach's alpha reliability score 0.8 above suggesting that the items have relatively high internal consistency and is

considered as “good” in the research (George and Mallery, 2003).

The quiz was given online by using the Socrative software. The post-test questions contained multiple choices and true or false questions based on the topics learned by the students. The students answered the questions online, and the instructors received all the students’ scores online after they finish the test.

In quantitative data collection, the researcher created virtual micro-lectures for both groups. For the control group was micro-lectures without assessment but with discussion while for the experimental group was the micro-lectures with the assessment. Both types of video lectures were uploaded in the different learning platform.

Control group micro-lectures were uploaded in Padlet and were given a selection of a time to view the videos. For the control group, the students viewed the micro-lectures and participated in online discussion before class time. For experience group, the micro-lectures were uploaded in EDpuzzle and integrated with the online assessment. Besides watching the micro-lectures, the students needed to do the assessment which appeared in the process of watching the micro-lectures and the instructor review the learning experiences for both groups in the learning processes.

Quantitative data analyses were conducted on results in the questionnaire (learning experiences) and quiz. SPSS software is used to examine students’ results. Questionnaires were analyzed by calculating the mean and standard deviation and correlations for the items. Descriptive statistics and independent T-test are used to measure the student learning experiences and results between the control group and experimental group.

Result & Discussion

This research is to investigate student learning experiences towards the use of assessments in a virtual learning environment. The results are mixed in terms of the questionnaire and the quiz results: 1) To investigate students’ learning experiences of teaching presence in a virtual learning environment. Result, No significant differences between the control group and experimental group. Discussion, The findings of this study have comparable results with the previous studies as there are no significant differences for the students’ learning experiences of teaching presence. Shea, Li, & Pickett (2006) explained that the result on teaching presence was no a significant difference between the groups of students. Additionally, Preisman (2014) commented that teaching presence did not produce significant differences between the two groups’ assignments. Furthermore, A. Lowenthal, & P.R. Lowenthal (2009) also identified that no significant differences were found in teaching presence between the groups in different disciplines. 2) To investigate students’ learning experiences of social presence in a virtual learning environment. Result, No significant differences between the control group and experimental group. Discussion, The result of this study is consistent with previous studies that there are no

significant differences in the students’ learning experiences of social presence. Lee, Spear, & Kero (2017) findings illustrated that social presence was no significant difference between the students in the three classroom conditions. Similar to the Gunbatar & Guyer (2017), the data on social presence scores showed no significant difference between the students. Besides, the analysis of Ming-Shang, Wei-Hung, Chang & Mei-Huei (2012) indicated that social context and online communication in social presence category were no significant differences among the students in the two groups. 3) To investigate students’ learning experiences of cognitive presence in a virtual learning environment. Result, No significant differences between the control group and experimental group. Discussion, The finding of this study produces a similar result with the previous studies that the cognitive presence is no significant difference in the learning settings. Rockinson-Szapkiw, Baker, Neukrug, & Hanes (2010) asserted that cognitive presences lead no significant difference between the two groups. Moreover, Kay, & MacDonald (2016) stated that there were no differences observed in cognitive presence among the use of different teaching approaches. 4) To investigate the relationship between students’ learning experiences of teaching presence, social presence and cognitive presence in a virtual learning environment. Result, A strong, positive correlation between the three variables in control and experimental group. Discussion, The study of Akyol & Garrison (2008) showed that the relationships between teaching, social and cognitive presence were significant in the course. Furthermore, Horzum (2015) provided the same view by reporting that students’ teaching presence, social presence, and cognitive presence were correlated positively in their online learning. Hence, the findings of this study consistent with the results from previous studies (Garrison et al., 2010; Joo et al., 2011; Shea & Bidjerano, 2009). 5) To investigate students’ learning experiences of academic performance in a virtual learning environment. Result, A significant difference between the control group and experimental group. Discussion, The result of this study has been supported with previous studies as assessment can enhance students’ academic achievement. Orr, & Foster (2013) argued that the use of online quizzing enriched students’ performance on the exam. This statement supported by the study of Baleni (2015) as an assessment able to boost students’ understanding and improve students’ performance. In addition, McLaughlin & Yan (2017) studied that online assessment increased students’ achievement.

As a result, the use and implementation of assessment in the virtual learning environment do not guarantee the positive learning experiences for the students. The usage of online assessment needs to be reconsidered in order to enhance students’ learning experiences. Furthermore, the time is given for the students to assess the virtual learning environment also need to be planned carefully so that the students can have more time to prepare for the assessment. The teachers’ instructions and guidelines on

the assessments in virtual learning environment need to be more effective so that the students can understand better and able to enhance students' learning experiences and results in the same time.

Conclusion

There are some limitations to this study. First, the samples in this study are in a smaller size which only 52 samples have participated in the study. Second, the selection of samples are focused for ICT courses only. Therefore, the evidence to show the students' learning experiences towards the use of assessment in VLE environment are limited. This study is significant to the Ministry of Education Malaysia, educators to know how the integration of the assessment in a virtual learning environment can help to increase the student learning experiences in the academic subjects. This study is significant for the educators to produce more effective and informative online assessment that can maximize the student's' learning. This study contributes to an innovative approach to teaching and learning in Malaysia higher education.

Many higher educational institutions have been adopted to teach and learn in a virtual learning environment in their campuses. However, the implementation of the effective assessments in the virtual learning environments still become the issue. The instructors in Malaysia should recognize the need to produce short, concise, information videos that integrate with an assessment which able to enhance students' learning. The Malaysia instructors can find and produce more effective online assessments which relevant to the courses and topics.

Since the research about the integration of assessment in a virtual learning environment and community of inquiry are still limited especially in Malaysia context, more samples in colleges and universities in Malaysia towards this type of research can be conducted in the future studies. This study only focuses on the ICT students in higher education. Therefore, more research can be conducted in other academic subjects or in school context to provide good evidence about the effectiveness of online assessment in the teaching and learning processes.

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