A Comparative Study on the

Effectiveness of Online Forum Discussion: Quantitative vs Qualitative Subjects

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Abstract

This paper compares the effectiveness of online forum discussion between quantitative and qualitative subjects offered to learners of Open University Malaysia (OUM). OUM adopted by OUM for its open and distance learning (ODL) comprises three components; self-managed learning, face-to-face interactions and online learning through myLMS to facilitate teaching and learning process. The nature of online learning requires high commitment from the learners, especially self-managed learning and collaborative online learning. Learning quantitative subjects such as mathematics or finance in a conventional environment is very demanding and it is difficult to grasp by a majority of learners compared to learning qualitative subjects such as management or marketing. The same problem existed in learning these subjects through e-learning. Therefore, interactions between the academic staff or tutors with the learners and also amongst learners are important. Thus, it is critical that quality and effective teaching and learning progression take place in online forum discussion. Community of Inquiry (CoI) is the most accepted model for online learning. The model as suggested by Garrison, Anderson and Archer (2000) stated that online learning occurs through the interaction of three domains: teaching presence, social presence and cognitive presence. Research findings indicate that there the mean score for all the three domains of CoI are relatively the same for both quantitative and qualitative subjects. Social Presence was the highest (mean score of 3.55 and 3.60 for BBPP 1103 and BBMP 1103, respectively) indicating learners are comfortable interacting with their peers via online forums.

In response to the nation's need for life-long learning culture as mooted in the Ninth Malaysia Plan, (2006-2010), Open University Malaysia (OUM) the first Open Distance Learning (ODL) institution in Malaysia was set up in 2001. OUM leverages on the use of information and communications technology, in particular the Internet, to complement the other modes of delivery namely the face-to-face and the self-managed learning modes using modules. Its e-learning management system, aptly called My Learning Management System (myLMS) was successfully developed to serve as an e-learning platform where learners and tutors can interact with each other in the online forum discussions, free from time and geographical constraints. myLMS offers opportunities for the acquisition of knowledge as well as for collaborative learning.

Need for the study

According to Lewis, Treves and Shaindlin (1997), interactions between course facilitators and learners as well as amongst learners are critical for effective online learning as they enable teaching and learning progression. Hence, it is critical for OUM to evaluate the quality and effectiveness of its online forum as a collaborative learning tool for its learners.

Abu Zarin, Che Aziz, Abdul Halim and Chiam (2008) studied the effectiveness of online forum for a quantitative subject, namely Mathematics for Management (BBMP 1103) and found that social presence was high among learners, indicating that learners were comfortable interacting and learning from each other. It was also observed that score for teaching presence was very low, indicating that facilitators were not providing the much-needed guidance to the learners. Thus the purpose of this study was to investigate further if the same pattern existed in online forums for a qualitative subject. Analyses were conducted for the January 2008 semester.

Two subjects of the same level were chosen, Mathematics for Management (BBMP 1103) and Principles of Management (BBPP 1103). Both subjects are core subjects for business degree programmes where the numbers of learners and tutors for are high. BBMP 1103 is considered a quantitative subject as it combines basic calculus, algebra and financial mathematics while BBPP 1103 is considered a qualitative subject as it is a theoretical foundation subject.

These two subjects were chosen from a pool of available subjects due to the following reasons:
  (1) Both subjects (BBMP 1103 and BBPP 1103) were offered in January 2008;
  (2) Both are first level subjects and are the core subjects for those taking the business programmes at the Faculty of Business and Management;
  (3) Total number of learners were 815 for BBMP 1103 and 953 for BBPP 1103;
  (4) Total number of posting were 12,051 for BBMP 1103 and 6,025 for BBPP 1103;
  (5) In total, there were 30 facilitators assigned to teach BBMP 1103 and 31 facilitators to teach BBPP 1103 via face-to-face and online forum with a total posting of 1,588 and 4,505 respectively.

Theoretical Framework

In evaluating the effectiveness of the online forum, the Community of Inquiry (CoI) model for online learning (refer to Figure 1) suggested by Garrison, Anderson and Archer (2000) was adopted. According to the model, online learning occurs through the interaction of three domains: Teaching Presence, Social Presence and Cognitive Presence. These elements are considered critical pre-requisites for a successful higher education experience. Thus analyses of the effectiveness on the online forums were based on these three domains.
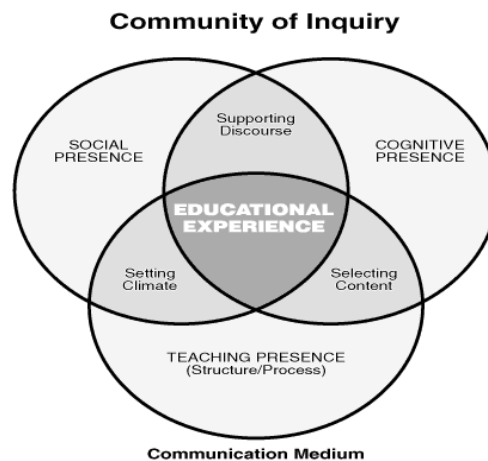
Figure 1: Community of Inquiry Model (Garrison, Anderson, Archer & Rourke, 2000)

Arbaugh and Garrison (2007) further defined the three elements as follows:
  (1) Social Presence is the ability of participants to project themselves purposefully and socially within a community of inquiry;
  (2) Cognitive Presence is the extent to which participants critically reflect, (re)construct meaning, and engage in discourse for the purpose of sharing and confirming understanding; and
  (3) Teaching Presence is the design, facilitation, and direction of cognitive and social processes for the purpose of realising personally, meaning and educationally worthwhile learning outcomes.

Meanwhile, Ellsworth (1994) described four types of interactions, which qualify as teaching and learning interactions:
  (1) Interaction between the students and professors in the educational process;
  (2) Interaction between the students and professors while searching for information on the net;
  (3) Joint activities of professors and the administration; and
  (4) Students' joint research projects.

Objectives of the study

The objectives of this study were to:
  (1) examine and compare the level of Social, Teaching and Cognitive Presence for BBMP1103 and BBPP 1103 online forums; and
  (2) recommend steps to be taken by OUM in order to improve or increase the effectiveness and quality of BBMP 1103 (quantitative subject) and BBPP 1103 (qualitative subject) online forum discussions based on the findings of the study.

Instrumentation and Data Analysis

For the purpose of this study, an instrument of 34 questions rated on a five-point Likert scale developed by Swan et al. (2008) was used to evaluate and measure the Teaching, Social and Cognitive presence in the online forums. The questions in the instrument consists of 13 questions for teaching presence, 9 questions for social presence and 12 questions for cognitive presence. The researchers observed and analysed each forums' interactions to look for evidences. Another researcher will then perform the same evaluation to ensure for consistency. Finally, the researchers discussed their analysis and observations, and made their recommendations.

Findings and Discussions

A total of 61 forums (30 for BBMP 1103 and 31 for BBPP 1103), were observed and rated on CoI's three elements: teaching presence, social presence and cognitive presence. The overall results are as shown in Table 1.

Table 1. Comparisons of Mean Score for Each CoI Element

	Characteristics	BBPP 1103	BBMP 1103
Teaching presence	Design & Organization	2.84	2.78
	Facilitation	3.12	2.97
	Direct Instruction	2.81	3.08
	Mean	**2.92**	**2.94**
Social presence	Affective Expression	3.32	3.61
	Open Communication	3.83	3.56
	Group Cohesion	3.50	3.52
	Mean	**3.55**	**3.60**
Cognitive presence	Triggering Event	3.25	3.16
	Exploration	3.19	3.40
	Integration	3.25	3.27
	Resolution	3.07	3.16
	Mean	**3.19**	**3.24**
	Overall mean	***3.22***	***3.23***

It is observed that the score obtained for Social Presence was the highest (mean score of 3.55 and 3.60 for BBPP 1103 and BBMP 1103 respectively) indicating learners are comfortable interacting with their peers via online forums. Learners were often observed to assist their peer learners in answering questions that were posted and in helping other learners to understand certain concepts or topics. This finding concurs with what was suggested by Bishop (2000) that is, collaborative learning is student centred rather than teacher focused. This result also indicates that students preferred peer interactions compared to their facilitators as found in a study conducted by Rourke and Anderson (2002).

It is also worth noting that the level of peer interaction among OUM learners in this study is higher compared to that found in a study done by Othman et al. (2005) on the effectiveness of asynchronous online forum for another qualitative subject; Bank Management. The higher level of peer interaction could be due to many factors such as an improved and stable myLMS platform, more affordable computer peripherals, higher computer skills and literacy among learners, faster Internet access (wireless and broadband), an increase in accessibility to information, and learners are more familiar with online communication.

Cognitive Presence scored a mean of 3.19 and 3.24 for BBPP 1103 and BBMP 1103 respectively, which is close to the neutral score of 3, indicating a balanced agreement and disagreement of the existence of triggering events, exploration, integration and resolution characteristics in the online forum. Even though Cognitive Presence is an important component, however in this study a neutral score is expected. Both subjects chosen were Level one subject that only introduced fundamental concepts and did not require a higher level application of mathematical or management concepts, hence the exploration, integration and resolution characteristics could not be observed among the majority of learners.

The low mean score obtained for Teaching Presence, 2.92 for BBPP 1103 and 2.94 for BBMP 1103, indicated that the facilitators were not playing their roles adequately. Another contributing factor is the low reliance on facilitators' help via online forums, as OUM learners have the opportunities to meet face-to-face with their facilitators. This may be considered a hindrance to effective online learning. In an ODL environment, teaching presence is vital as it can make a significant difference in the engagement of learners and facilitation of learning. This is because learners need clear guidance, feedback, and motivation from their instructors in order to manage their self-learning effectively.
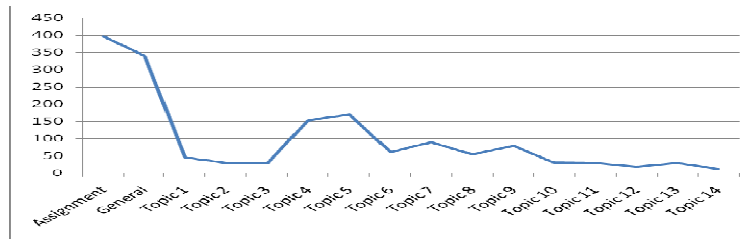

Figure 2. Trend in Facilitators' Postings for BBMP 1103
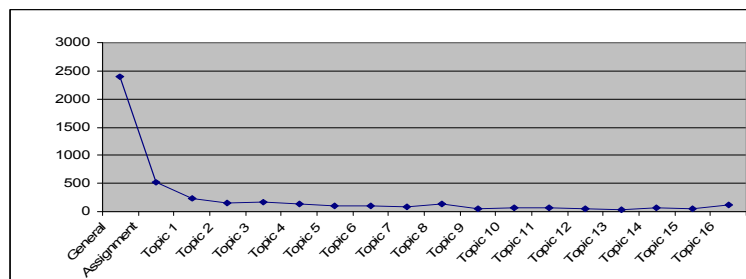

Figure 3. Trend in Facilitators' Postings for BBPP 1103

The trend in facilitators' postings for BBMP 1103 and BBPP 1103 as depicted by the total number of postings throughout the January 2008 semester are shown in Figure 2 and Figure 3 respectively. It is observed that facilitators were active in discussing general and assignment issues for both subjects. It is also noted that the frequency of facilitators' postings decreased significantly as the semester commences.

The higher number of postings in discussing assignment could be because learners were keen to exchange ideas with fellow learners on how to prepare their assignments which carried relatively high marks. We conclude that this in effect contributes to the high mean score of social presence. However, discussions regarding later topics for both courses are found to be minimal and infrequent.

In summary, both subjects show relatively the same mean score for all three CoI domains. This similarity in patterns can be explained by the nature and level of the subjects. Both subjects are core subjects for Level one business programme. It is among the first few subjects taken by learners, whereby they have not been fully exposed to all the functions of forum and were therefore reluctant to openly discuss with tutors in the forum. Another contributing factor could be the nature of subjects, whereby topics discussed

revolves around fundamentals and basic theories, which can be easily read and understood from the textbooks or modules.

Recommendations to Improve Online Interactions

Several measures that could be taken in OUM to enhance the effectiveness of online forum discussions for BBMP 11003 and BBPP 1103, especially to improve Teaching Presence are as follows:

Firstly, frequent reminders using Short-Messaging-System (SMS) could be sent to all instructors by the Centre for Tutor Management and Development (CTMD) e.g. every fortnightly, to encourage learner participation. With this reminder, it is hoped that online facilitators will be prompted to be more pro active, responsive and participate more actively in the online forums throughout the semester.

Secondly, as text reply appears to be time consuming (this is observed through the short replies given by both facilitators and learners), tools that enable online facilitators to reply via audio or video (web camera) feedback should be added to myLMS forum. A study by Ice, Curtis, Phillips and Wells (2007) suggested that audio feedback can enhance learning; and from the instructors' perspectives, audio feedback can reduce the time required for instructors to provide feedback compared to text replies.

Finally, in addition to training given on how to use the online forum discussion, facilitators should also be trained further on the pedagogy for online learning, which is different from that for traditional teaching and learning. Facilitators must know their roles and responsibilities, for example, motivating and encouraging learners, providing feedbacks and facilitating discussion among learners.

Suggestions for Further Research

This study shows that the mean score for all the three domains of CoI are relatively the same for both quantitative and qualitative subjects. We propose to further this research by comparing the effectiveness of online forum for higher level courses for quantitative and qualitative subjects based on the CoI model. Such a study could further explain how online learning occurs through the effective interaction between teaching presence, social presence and cognitive presence.

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