

Editor's Note: This paper explores the frequency and purpose of information exchange on asynchronous forum boards. Analysis of Learning Management System data is based on Oliver and McLoughlin's five dimensions of interaction and categories of exchanges. Analysis of derived data on number and types of interactions and thread levels provide valuable information for program evaluation and instructional design.

The Open University Malaysia Learning Management System: A Study of Interaction in the Asynchronous Forum Board

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Abstract

The Open University Malaysia (OUM) is the largest Open and Distance Learning (ODL) institution in Malaysia with the current enrolment exceeding 23,000 students. In terms of teaching and learning, the OUM utilises the blended approach that combines printed learning materials as the main learning resource supplemented by face-to-face interactions at regional centres and online learning through a specially designed Learning Management System (LMS). One important feature incorporated into the LMS is the asynchronous forum board. The provision of the asynchronous forum board allows empowerment of a geographically dispersed group of students to participate in a collaborative learning environment with tutors and peers.

This article reports on the study that elucidated the type of communicative dimensions that transpired in such an asynchronous forum board. The analysis of the interaction was based on the Oliver & McLoughlin interaction model consisting of five interactive dimensions namely, social, procedural, expository, explanatory and cognitive, across five combinations of forum exchanges between the lecturer, students and the group as a whole. The results revealed that the explanatory dimension in the student-tutor and tutor-student interaction combinations was the dominant one. This was followed by the procedural dimension. The expository, social and cognitive dimensions were the least dominant. The depth of the interactions was evaluated by the thread levels and findings revealed that most interactions progressed up to the second thread level of interaction. Fewer interactions progressed to the third and fourth thread levels. The impact of the pattern and the depth of interaction in enhancing the quality of knowledge construction and the understanding of the course materials is discussed and highlighted.

KeyWords: learning management system, LMS, asynchronous forum board, interaction, distance learning, learning environment, collaboration, open university, learners support system, learning facilitation, communication, thread level of discussion, learning engagement

Introduction

The Open University Malaysia (OUM) is the first private Open and Distance Learning (ODL) institution in Malaysia and its establishment in the year 2000 was to fulfil the nation's aspiration to increase the access of higher education to more Malaysians, especially working adults. Its mission statements are that the institution would be the leading contributor in the democratisation of education, it would develop quality education through multimode learning technologies, and

develop and enhance learning experiences to promote development of a knowledge-based society (STAR, 2004).

The expansion of the OUM is tremendous and this can be seen in terms of the current student population of more than 23,000 after three years of operation. The OUM teaching-learning system is premised on blended pedagogy whereby print-based materials provide ready input alongside face-to-face tutorials and online learning (OUM, 2004). The online learning involves provision of online course delivery tools through the Learning Management System (LMS). The OUM LMS – MyLMS is the homegrown LMS that allows the integration of various features such as instructor tools, instructional features, students' tools, technical support, administrative tools and other administrative features.

There have been a number of studies conducted to evaluate various features embedded in the LMS such as those of the multimedia learning system (Low et al., 2003) and the open source (Zulham et al., 2004). The incorporation of the multimedia learning system and the management operation was found not only to increase efficiency but also empower geographically and temporally dispersed groups of educators, administrators and students to participate in a dynamic learning organisation, and thus enhance learning through engaging activities (Low et al., 2003). Zulham et al. (2004) on the hand, stressed the important features of the open source LMS that are robust enough to satisfy the varying needs of the educational institutions in terms of the pedagogical approaches.

One important feature of the LMS is the asynchronous forum board – a communicative platform for collaboration and group work that helps to clarify issues pertaining to course contents. Significantly, this feature may be described as a learning environment whereby the written text is transmitted back and forth between two or more persons who are at different locations. They read the text and respond to it at a later time, thus creating a whole new level of interactions and generating a rich collaborative and communicative learning environment (Healey & Brayn-Kinns, 2000).

An interaction is a complex variable that has many facets (Kearsely, 1995). The significance of an interaction is that it provides the means for learners to receive feedback. Insofar as feedback determines successful learning progress through the correction of mistakes or the promotion of motivation, it can be argued that the more interaction provided, the better the progress. Stanberry (2000) conducted detailed studies of interactions and concluded that increased interactions improve students' achievements and attitudes towards learning. Interactions engage learners, causing them to reflect on ideas and articulate them. Interactions also encourage and facilitate cognition and play an important part in promoting learners' intellectual operations and thinking processes (Clements & Nastasi, 1988; Thurmond & Wambach, undated).

Many conceptual frameworks have been put forward to describe the pattern and structure of interactions in the technology-assisted course delivery in distance education programmes (Moore, 1989; Robson, 1996; Oliver & McLoughlin, 1997a; Fahy, 2001). Moore (1989) proposed the lecturer-students interaction, learner-learner interaction and learner-content interaction as the three main types of interactions that can be supported by synchronous interactive technology. Fulford & Zhang (1993) identified personal interaction, overall interaction and satisfaction as critical factors to measure the successes in distance education. Robson (1996), on the other hand, used interpretative methodology and classified interaction in terms of the pattern of exchanges between lecturer and students. Fahy (2001) classified interaction in terms of the functionality of the exchanges such as being referential or engaging and whether they are reflections, acknowledgements or apologies, etc.

The framework used in this study was based on the interaction model proposed by Oliver & McLoughlin (1997a). It is a content analysis model consisting of five critical dimensions that

provide multilevel understanding of the learning process. The five critical dimensions of the interactions are shown in Table 1.

Table 1
The Dimensions of Interactions
(Oliver & McLoughlin, 1997a)

Dimensions of Interactions	Description
Social	Establishing and developing rapport
Procedural	Explanation on course requirements and procedures
Expository	Demonstration of knowledge or skills in response to a direct request from one another
Explanatory	Lecturer using students' responses to explain knowledge and develop content
Cognitive	Lecturer providing constructive feedback to a student to reflect and to reconsider an alternative perspective/reality

In the asynchronous forum exchanges, there are basically two parties involved in the interaction, namely the initiator and the respondent. The initiator and the respondent could either be a lecturer, students or the group. Accordingly, the type of interaction is further classified into categories of exchanges as depicted in Table 2.

Table 2
Categories of Exchanges
(adopted from Oliver & McLoughlin, 1997a)

Category of Exchanges	Description
T-G	Tutor initiates and directs at the group
T-S	Tutor initiates and directs exchange at a specific student
S-T	Student initiates and directs exchange at the tutor
S-S	Student initiates and directs exchange at other students
S-G	Student initiate and direct exchange within the group

The purpose of this study is to investigate the ways the lecturer and students use the asynchronous forum board of the OUM LMS utilising the framework as proposed by Oliver & McLoughlin (1997a). Specifically, this study looks at the types of interactions deployed by the tutor and students and elucidates the extent to which these interactions are being utilised in order to establish the pattern of use. The depth of the discussions is also investigated by establishing thread levels. In a particular topic of discussion, the higher the thread level, the deeper the discussion has progressed and evidently, a higher thread level indicates that a high degree of interaction and learning engagements has taken place. Also of interest to this study is an estimate of the impact of different types of interactions towards the instructional outcomes, learning enjoyment and satisfaction among students. In undertaking this study, the following questions were asked:

- a. What are the dimensions of exchanges according to the Oliver & McLoughlin (1997a) model that are being established in the asynchronous forum board of the OUM LMS?
- b. What is the depth of these exchanges in relation to the various units of the course content?

Methodology

The data collected from this study were drawn from BBBM 4103 – Bank Management course. It is a third year course for students enrolled in the B.B.A. (Honours) programme offered by the Faculty of Business and Management, OUM. For the September - December 2004 semester session, a total of 25 students were enrolled in this course. Since the students were geographically dispersed in the country, two personalised tutor were appointed. Only the forum exchanges of the 17 students assigned to one of the personalised tutor were used in this study.

The data collected were immediately analysed following the end of the semester on 1 January 2005. The analysis of data involved transcribing the forum messages to enable the complete elucidation of the pattern of student-lecturer and student-student messages as well as the depth of the ensuing discussion. The transcriptions involved a microanalysis and coding of the interaction patterns and information exchanges into the appropriate classifications of interactions, namely, the social, procedural, expository, explanatory and cognitive types. The classifications were arrived at based on questions, statements and the ensuing replies that took place between the lecturer-students and student-students. In some cases, a single exchange involved multiple interactions. For the purpose of this study, a single interaction is defined by the topic and the instructional intent of the message and a single message could therefore contain a number of interactions depending on the topic and the instructional intent of the message. The classification of the types of interactions into respective categories was done with little difficulty as most of the postings were clearly distinguished by their form and functions.

The validity of the classification process was verified by a panel of researchers. These researchers were required to perform the independent coding process based on the framework described and the results obtained showed that they were in complete agreement with the actual coding process. The depth of discussion was manually analysed based on the thread levels achieved by a particular topic of discussion. The analysis involved following the progression of the discussion and the number of messages at given levels was recorded and the frequency calculated.

Results and Discussion

Table 3 depicts the frequency and types of interactions observed in the forum exchanges. A total of 125 exchanges transpired during the entire course with the explanatory interaction being the most dominant (63.2%), followed to a lesser extent, by the procedural (15.2%), social (8.8%) and expository (7.2%) types. The least dominant one was the cognitive (5.6%) interaction. When the interactions themselves were considered and domains of exchanges studied in detail, an interesting picture of the types and forms of interactivity used emerged. It is evident from the table that most of the messages were student-lecturer (S-T) initiated (55.2%) and they were predominantly in the explanatory communicative dimension. The next mode of interaction was the lecturer-initiated interaction, (T-S) with a contribution of (29.6%) to the total interaction. The tutor-initiated interaction to the whole class (T-C) recorded a lesser contribution (8.8%) while the student-initiated interaction recorded the least contribution (6.4%).

Table 3
Number and Types of Interactions

Types of Interactions	Frequency				Total
	Tutor-Class (T-C)	Tutor-Students (T-S)	Student-Tutor (S-T)	Student-Class (S-C)	
Social	2	2	7		11
Procedural	2	7	10		19
Expository	1	2	6		9
Explanatory	2	25	44	8	79
Cognitive	4	1	2		7
Total	11	37	69		125

It is therefore evident that the explanatory communicative dimension with student-initiated interactions (S-T) was the most prominent type of interaction in this forum board. The explanatory type of interaction – regarded as of a negotiative nature involving negotiation between the tutor and students – is known to lead to higher levels of understanding and knowledge construction. The high levels of explanatory interactions observed were a consequence of the primary high level of knowledge development that was being sought by the students. The role of the students as central to the learning process is widely espoused by the literature (Kinzie, 1990; Oliver & McLoughlin, 1997b; Atan et al., 2005). The students should play a primary role in initiating the communication that leads to more cooperative and collaborative activities among them, thus increasing the levels of reflective and cognitive activity on their part and promoting high-order learning. The lecturer, on other hand, should encourage and develop learning environments with high levels of communication, collaborative discourse and student-centred activity (Oliver & McLoughlin, 1997b).

The procedural type of interaction recorded the next highest contribution and as in the explanatory type of interaction, most of the exchanges were in the S-T category. These messages were those enquiring about the course in general, information related to assignments, tests and the examination, and information related to course requirements and procedures. The frequency of student initiated procedural interactions is indicative of the need of the students to manage their learning from a distance. For example, they need to know the status of assignments and marks obtained as well as course requirement-related matters in general.

The exchanges involving the desired and preferable cognitive dimensions imperative for effective knowledge construction recorded the least contribution to the total interaction observed. This type of interaction requires the tutor to direct the communication to individual students rather than to the group as a whole and such interaction must have the characteristic that challenges the students' current understanding of the concept and provides them with different perspectives of the concept. Such interactions promote high-level thinking and enhance memory retention as well as provide better understanding of course contents. A study by Mason (1991) corroborated that the lecturer plays a pertinent role in enhancing the effectiveness collaboration. However, only highly skilful tutors can influences the discussion process in this cognitive dimension by probing into the new perspective of concepts, putting forward real and authentic problems to require students to seek and share learning resources and redirecting the conversation pattern for active and meaningful students' participation. A further study that looks into the role of the lecturer in

online discussions that promote active student engagement as well as critical thinking opportunities (thus making learning enjoyable and meaningful) is therefore imperative.

It is also noted that very minimal interaction occurred between students and the group as a whole, i.e., in the student-group (S-G) category. This is an indication of very little collaborative learning and the sharing of ideas and knowledge taking place as a group. The technology has provided the means to create positive and engaging learning environments that provide adequate opportunities for genuine dialogue and social interaction, which are vital elements in the learning process. However, as these results indicate, these were not adequately used by the students to seek out particular learning outcomes and advantages.

Table 4 depicts the thread levels of interactions. It is evident that the analysis of the depth of the exchanges revealed that the exchanges were mostly only in the first thread of interactions (43.2%), an indication of a single or an initiator posting. Some of this initiator postings received feedback and comments as evident in the exchanges that progressed to Thread 2, implying two-way communications between an initiator and subsequent respondents (34.4%). However, only a very small proportion of the feedback progressed to Thread 3 (16.0%) and a much lesser extent of exchanges progressed to Thread 4 (6.4%).

Table 4
The Thread Levels of Discussions

Course Heading	Frequency				
	Thread 1	Thread 2	Thread 3	Thread 4	Total
Assignment	8	17	2	1	28
Unit 1	24	15	7	4	50
Unit 2	12	2	5	3	22
Unit 3	7	5	6		18
Unit 4	3	4			7
Total	54	43	20	8	125
Total as %	43.2%	34.4%	16.0%	6.4%	100%

The high percentage of Thread 2 discussions vis-à-vis small proportions in Thread 3 and Thread 4 indicated that the forum exchanges were mostly in the domain of student initiation and directed to the tutor, this being followed by subsequent feedback from the tutor. Such a discussion lacked depth with no participation from other students that would prolong the progression of the discussion leading to more enhanced learning. It is also probable that the topics of discussion posted by the initiator were more individualistic in nature and hindered contribution from the other students. Subsequently, they were of less benefit to the group as a whole in terms of the learning outputs. It is also indicative of an environment where much of the potential educational advantages that result from communication and rich social interaction are absent. It therefore appears that a meaningful step in the future would be the provision of training among tutors that enable them to encourage students to engage in more effective and challenging interactions.

Summary

The interactive element in the asynchronous forum board of the OUM has successfully created a positive learning environment through the high level communicative exchanges and instructional purposes as evident in the high frequency of exchanges recorded in the explanatory interactive dimension. The interaction is highly student initiated and mostly directed to the tutor. However, it appears that the interactions observed in this study lack the desired depth imperative for a rich and active collaborative environment that creates meaningful learning experiences among students. The interaction also lacks the preferable cognitive dimensions necessary for high levels understanding and knowledge construction. The provision of training is therefore imperative among tutors so that they are become skilful at encouraging students to engage in more meaningful interactions that promote enhanced memory retention as well as better understanding of course contents.

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