

## **ASYNCHRONOUS ELECTRONIC DISCUSSION GROUP: Analysis of Postings and Perception of In-service Teachers**

**Tina Lim Swee KIM**  
Research and Development Department  
Ipoh Teacher Training Institute  
MALAYSIA

**Wong Kiet WAH**  
**Tan Ai LEE**  
Department of Educational Studies  
Ipoh Teacher Training Institute  
MALAYSIA

### **ABSTRACT**

This paper examines the practice of online discussion in a course specially tailored for in-service teachers who are pursuing their basic degree qualification at a teacher training institute. Analyses of postings to the asynchronous electronic discussion group were made according to the type of postings as proposed by Poole (2000). Four focus areas were looked into, that is, content, technical, procedural, or non-academic. Analyses were done for each quarter of the 12 weeks of interaction. At the end of the learners' participation in the EDG and before their end-of-course examination, the participants were then given a paper-based questionnaire asking their perceptions on the use of EDG as part of their coursework on the whole. Six aspects of EDG were examined, these are;

- technical aspects,
- motivation to use the EDG,
- quality of interaction,
- tutor's response,
- perceived learning, and
- attitude towards EDG.

Analyses on postings for the EDG showed that the bulk of the postings were made in the last quarter of the online discussions. Further, 97.8% of the postings were on content and the types of content posting registered were predominantly questions (41.19%) and those that sought clarification/elaboration (37.48%). Findings from this study suggest that overall the participants were satisfied with the six aspects of EDG examined. The aspect that recorded the highest mean was 'motivation to read tutor's responses' whilst the lowest mean (and the only one with negative perception) was for 'worthiness of time spent on online discussions'.

**Keywords:** Asynchronous electronic discussion groups; online discussion; postings.

### **INTRODUCTION**

In the recent years, the concept of life-long learning has taken its roots among Malaysian teachers. As more and higher institutions of learning offer programs for adult learners, the populations of teachers who aspire to upgrade their professional and academic qualifications have the opportunity to enroll in distance learning programs without having to put their careers on hold.

One such higher institution of learning in Malaysia that caters to such needs is the Open University Malaysia (OUM). One of the courses conducted by OUM in collaboration with the Teacher Education Division, Ministry of Education, Malaysia is a 14-week Bachelor Degree in Teaching preparatory in-service course whose participants are non-graduate teachers.

During the 14-week duration, college lecturers in various teacher training colleges/institutions throughout Malaysia conduct the teaching. OUM functions as the coordinator and also monitors the course, the teaching staff and learning facilities. In the process of earning credits, participants of this program are registered as OUM students. This allows the National Accreditation Board (LAN) to acknowledge teacher training colleges/institutions as OUM Learning Centers. In addition, the earned credits will be recognized as partial fulfillment for a Bachelor Degree in Teaching. The course requires students to take seven subjects, that is, Professional Ethics, English for Oral Communication, English for Workplace Communication or English for Science and Technology, English for Written Communication; and Basic Education subjects, that is, Educational Psychology, Guidance and Counselling, and Educational Technology Principles.

The concept of self-directed learning plays a vital role in this program. As students will undergo various modes of instruction, such as using modules and CDs, experiencing face-to-face interactions, being involved in online discussions and accessing the digital library, self-motivation, self-regulation and personal efforts are key factors to successful and meaningful intellectual and professional development. In order to encourage the course participants to go online for the electronic discussion (also known officially as the online forum in this course), marks of up to a maximum of five (two for frequency and three for quality), are awarded by online tutors based on frequency and quality of contribution. In this aspect, the role of the online tutor is to facilitate discussions, help learners to understand content better and motivate learners to achieve their potential. Dialogue sessions over the Internet are deemed to be "two-way and highly interactive" (OUM, 2003).

## **LITERATURE REVIEW**

### **Reported Advantages of Electronic Discussion Groups**

Asynchronous technology is widely used in distance learning courses (Wu & Hiltz, 2004). Tennet and Hyland (2004) suggest, "Much of the increase in online learning is in response to the rapid growth in student numbers, the need to reduce costs and more requirements for flexible teaching and learning (p.3). The various applications of asynchronous technology include e-mail, electronic discussion groups (EDGs) and threaded messages boards. The flexibility and convenience of discussions that do not occur in real time is that those involved need not log on to the Internet at the same time or at the same place. Learning occurs in a distributed environment.

Murphy and Coleman (2004) describe asynchronous EDGs as being free from temporal and spatial constraints. In comparing asynchronous electronic discussions and traditional face-to-face discussions, MacKinnon (2000) emphasizes that they operate under different assumptions and possess distinctly different dynamics. Harasim (1990) as cited in Murphy and Coleman (2004), suggests that the time and place-independent nature of asynchronous discussions facilitates self-directed learning.

Course developers generally incorporate asynchronous electronic discussions with the hope of supporting students' learning and supplementing course input. However, Tennet and Hyland (2004) argue that the impact of online technologies remain unclear despite the various potential that has been reported.

Another important point to note is that the opportunities and benefits of online discussions do not occur automatically (Murphy & Loveless, 2005).

### **Challenges of Electronic Discussion Groups**

While research findings indicate that there are numerous benefits to the use of online technologies such as an increase in opportunities for constructing and negotiating meaning as well as for promoting critical thinking processes, one common challenge faced by online course tutors is that of student engagement. First, there is the problem of motivating students to go online for discussions, and then there is the challenge of maintaining participation and last but not least is the quality of postings. Different perceptions and findings related to the issue of assessment have also been reported. Amongst others, Warren and Rada (1998) cite assessment as a contributory factor to increases in postings. When assessment is weaved in as part of the reason for online discussions, the majority, if not all, of the participants are successfully 'persuaded' to go online. However, Oliver and Shaw (2003) propose that the use of assessment to encourage students to post contributions appear to be "only a superficial success" (p.2). They suggest that such a practice need not necessarily improve learning especially so when students 'played the game' of assessment that is participating just to earn marks. This leads us to problems of level of interaction as reported by many including Hisham and Rozhan (2003). Murphy and Coleman (2004) report the low quality and high quantities of postings that are generated to meet grade requirements are not reflective of higher order thinking that is commonly aspired from online discussions.

The findings of their research show that the contributions lacked meaningfulness and thoughtfulness and that there was a tendency for the participants to "state an opinion to meet a participation requirement" rather than constructing and negotiating meaning.

### **IMPORTANCE of DESIGN**

A review of literature strongly suggests that the design of online discussions play a key role in determining the level of participation and interaction among students. Oliver and Shaw (2003) report attempts by researchers to identify 'appropriate' designs and forms of intervention that contribute to effective learning. They stress, "it cannot be assumed that provision of a technological infrastructure will somehow cause collaboration and learning to take place" (p.4).

In discussing the design of online discussions, Wu and Hiltz (2004) are of the opinion that providing more structure to online discussions will not only help to avoid or decrease inefficiency of such activities but also improve perceived learning.

### **Objectives of study**

The objectives of this study were:

- To examine the nature of electronic discussion group postings made by teachers in 14-week Bachelor Degree in Teaching preparatory in-service course, and
- To examine the perceptions of course participants regarding the use of the electronic discussion group.

### **Research questions**

The research questions that guided this study were:

- What is the nature of electronic discussion group postings made by teachers in the 14-week Bachelor Degree in Teaching preparatory in-service course?
- What are the perceptions of course participants regarding the use of the electronic discussion group?

### **Significance of study**

The level and quality of learner engagement is contingent to the effectiveness of any delivery mode for teaching and learning. Further, as Murphy and Coleman (2004) aptly put it, "we need to continue to gain an understanding of the types of challenges that learner's experience" (p.3). As such, the analysis of postings made by course participants as well as their views regarding the use of asynchronous EDG is likely to give a better insight on the course participants' actual practice as well as the actual benefits and challenges faced by the learners. It is also hoped that findings from this study will enable future online course designers and implementers to gain a better understanding on how to further improve the use of asynchronous EDGs in online teaching-learning environments.

## **METHODOLOGY**

### **Sample**

The sample for this study comprised 113 in-service teachers attending the 14-week Bachelor Degree in Teaching preparatory in-service course in a teacher-training college in Malaysia. However, only 109 course participants responded to the questionnaire that was administered and 103 took part in the asynchronous EDG.

### **Data collection and Instrumentation**

Postings to the asynchronous EDG were analyzed only for the Educational Psychology component. Analyses were done for each quarter of the 12 weeks of online interaction. A tally sheet was used to tabulate the data from the EDG. At the end of the learners' participation in the EDG and before their examination, the course participants were given a paper-based questionnaire asking their perceptions on the use of EDG as part of their coursework on the whole. The questionnaire consists of two parts; Part A relating to demographic data and Part B with items on six aspects of EDG use that is;

- technical aspects;
- motivation to use the EDG;
- quality of interaction;
- tutor's response;
- perceived learning; and
- attitude towards EDG.

The total number of items is 15 and the items are on a five-point Likert scale, that is, Strongly Agree, Agree, Quite Agree, Disagree, and Strongly Disagree. The reliability coefficient (Cronbach alpha) computed was 0.93 with all items recording positive item-total correlations ranging from 0.51 through 0.80.

### **Data Analysis**

Analyses of postings to the asynchronous electronic discussion group were made according to the type of postings as proposed by Poole (2000). However, only four of the five focus areas identified were utilized that is content, technical, procedural, or non-academic. Postings coded as *content* are those that refer to course readings and syllabus; technical postings are those that contain information or questions about the use of the course website or EDG; procedural postings relate to announcements or information related to the running of the course, for example schedule and tasks that need to be completed; non-academic postings are those that do have no direct relation to academic content. Content postings are then further analyzed according to the type

of interaction seen. The categories used are those developed by MacKinnon (2000) and are as follow:

- Acknowledgement of opinions,
- Question (thoughtful query),
- Compare (similarity, analogy),
- Contrast (distinction, discriminate),
- Evaluation (unsubstantiated judgment, value),
- Idea to example (deduction, analogy),
- Example to idea (induction, conclusion),
- Clarification, elaboration (reiterating a point, building on a point),
- Cause and effect (inference, consequence), and
- Off-topic/Faulty reasoning (entry inappropriate)

Data on type of postings and interactions were analysed using descriptive statistics such as frequency and percentage. As for the questionnaire on perceptions on the use of EDG, frequency and percentage were calculated to analyse the items. In addition to that, the mean and standard deviation for each category were also computed so that rank order according to level of satisfaction for the various aspects may be done.

### **Limitation of study**

This study is based on the perception and practice of online learning of the pioneer batch of in-service teachers in the 14-week Bachelor Degree in teaching preparatory in-service course. The findings might or might not reflect the perception and practice of other participants in similar open and distance learning courses.

## **FINDINGS AND DISCUSSION**

As may be seen from Table 1, analysis of respondents according to age revealed that 6.4 percent of the course participants were between 30 and 34 years old, 30.3 percent between 35 and 39 years old, 51.4 percent or the majority of them between 40 and 44 years old and 11.9 percent between 45 and 49 years old.

**Table: 1**  
**Analysis of respondents according to age**

<b>Age</b>	<b>Frequency</b>	<b>Percent</b>
<b>30–34 years old</b>	<b>7</b>	<b>6.4</b>
<b>35–39 years old</b>	<b>33</b>	<b>30.3</b>
<b>40–44 years old</b>	<b>56</b>	<b>51.4</b>
<b>45–49 years old</b>	<b>13</b>	<b>11.9</b>
<b>Total</b>	<b>109</b>	<b>100.0</b>

Based on the questionnaire that was administered, it was found that 3.7 percent of the 109 respondents considered themselves to be very skilled at computer technology, 26.6 percent perceived themselves to be good, the majority or 60.6 percent satisfactory and 9.2 percent poor. None of the respondents admitted to having very poor computer technology skills.

As to the question of whether the respondents had access to the Internet at the time of this study, 81.7 percent said 'yes' while the remainder 18.3 percent said 'no'. Analysis

of course participants' perception towards the asynchronous electronic discussion group on the whole, revealed that they were satisfied with the technical aspects.

'Availability of computers' recorded a mean of 3.60 and a standard deviation of 1.01 while 'Ease of access to the Internet' had a mean of 3.32 and a standard deviation of 0.95. This could be attributed to the fact that 81.7 percent professed access to the Internet in their homes and that the institute also provided computers with Internet access in the library as well as computer laboratories. With regards to motivation, the highest ranked aspect was the motivation to read the tutor's response (mean=3.79, S.D.=0.89), followed by 'Motivation to read other students' contribution' (mean=3.40, S.D.=0.75) and then 'Motivation to contribute' (mean=3.32, S.D.=0.76).

When asked about the quality of interaction in the asynchronous electronic discussion group, the participants had positive perceptions for both interaction among students and interaction between tutor and student. The mean for the former is 3.32 with a standard deviation of 0.92 while the mean for the latter is 3.39 with a standard deviation of 0.94.

**Table: 2**  
**Perception of Respondents towards the Asynchronous EDG**

Aspects	SA	A	QA	D	SD	Mean	S.D.	N
<b>1. Technical aspects</b>								
Availability of computers	17.6%	42.6%	25.9%	10.2%	3.7%	3.60	1.01	108
Ease of access to the Internet	10.3%	32.7%	37.4%	17.8%	1.9%	3.32	0.95	107
<b>2. Motivation to use online forum</b>								
Motivated to contribute	5.6%							
Motivated to read other students' contribution	6.5%	32.4%	51.9%	9.3%	0.9%	3.32	0.76	108
		36.4%	47.7%	9.3%	0.0%	3.40	0.75	107
Motivated to read tutor's response	22.4%	42.1%	27.1%	8.4%	0.0%	3.79	0.89	107
<b>3. Quality of interaction</b>								
Good interaction among students	8.3%							
Good interaction between tutor and student	13.0%	37.0%	34.3%	19.4%	0.9%	3.32	0.92	108
		31.5%	38.9%	15.7%	0.9%	3.39	0.94	108
<b>4. Tutor's response</b>								
Good support	10.2%	37.0%	35.2%	17.6%	0.0%	3.40	0.90	108
Timely response	4.6%	17.6%	43.5%	31.5%	2.8%	2.90	0.89	108
<b>5. Perceived learning from</b>								
online forum Reinforces what was taught extends learning	1.8%	36.7%	42.2%	17.4%	1.8%	3.19	0.81	107
Creates opportunity for clarification	3.7%	48.6%	32.1%	13.8%	1.8%	3.38	0.84	109
	8.3%	36.7%	36.7%	16.5%	1.8%	3.33	0.91	109
<b>6. Attitude towards the use of online forum</b>								
(a) Enjoy participating	9.2%	28.4%	44.0%	14.7%	3.7%	3.25	0.94	109
(b) Look forward to online forum	5.6%	17.6%	52.8%	19.4%	4.6%	3.00	0.89	108
(c) Worth the time spent	3.7%	16.5%	42.2%	28.4%	9.2%	2.77	0.96	109

Meanwhile, perception towards tutor's response was mixed in that the participants perceived that tutors provided good support (mean=3.40, S.D.=0.90) but they did not

perceive the tutor's response as timely (mean=2.90, S.D.=0.89). A possible reason for the low mean of 2.90 is that tutors did not log in as regularly as the participants had hoped that they would. As for 'Perceived learning from the online forum', the participants rated "Extends learning" highest (mean=3.38, S.D.=0.84), followed by 'Creates opportunity for clarification' (mean=3.33, S.D.=0.91) and 'Reinforces what was taught' (mean=3.19, S.D.=0.81).

Analysis of the participants' attitude towards the use of online forum showed that although the respondents enjoyed participating in the electronic discussion group (mean=3.25, S.D.=0.94), they were neutral in looking forward to it (mean=3.00, S.D.=0.89). The finding that they did not think that it was worth the time spent (mean=2.77, S.D.=0.96) is probably due to the fact that they were already having face-to-face interaction with their tutors throughout the whole duration of the course and in all probability went online to fulfill assessment requirements.

**Table: 3**  
**Frequency of postings according to type of posting and period of posting**

Time frame Type of posting	First quarter	Second quarter	Third quarter	Last quarter	Total number of postings
Content	5 0.9%	146 26.5%	97 17.6%	291 52.8%	539 97.8%
Technical	0	0	0	0	0
Procedural	0	0	2 0.4%	2 0.4%	4 0.8%
Non - academic	0	6 (1.0%)	0	2 0.4%	8 1.4%
<b>Total</b>	<b>5</b> <b>0.9%</b>	<b>152</b> <b>27.5%</b>	<b>99</b> <b>20.0%</b>	<b>295</b> <b>53.6%</b>	<b>551</b> <b>100.0%</b>

Unlike the analyses on perception towards the asynchronous EDG, analyses of frequency of postings according to time and type of posting, as shown in Table 2, were based on participation in the Educational Psychology electronic discussion group only and not for all the subjects taken in the course.

As may be seen from Table: 2, only 0.9 percent of the postings came in during the first three weeks that is the first quarter of the 12 week allocated for interaction. All the postings were related to content. 27.5 percent of the discussion was posted in the second quarter. The majority of the postings (146 or 26.5 percent) were content posts. The course assignment was given out by tutors on the fourth week and therefore a big portion of the questions posted were concerned in getting clarification and elaboration from the tutors. The pace of posting dropped in the third quarter with only 99 postings or 20.0 percent.

A possible reason is that the participants were busy completing their assignments and also preparing themselves for the mid-term test which was held during this period of time. Again, the electronic discussion was mainly related to content (17.6 percent). For the last quarter for online interaction, the bulk of the postings (53.6 percent) came in as the participants attempted to fulfill the EDG interaction dateline and assessment requirement of a minimum of five postings per participant. Out of the 53.6 percent,

52.8 percent was content postings, 0.4 percent on procedural and another 0.4 percent on non-academic matters.

As can be seen in Table 2, overall, content postings constituted 97.8 percent of the total postings submitted and procedural and non-academic types of postings recorded 0.8 percent and 1.4 percent respectively. Two entries reported after the dateline were not included in the analyses.

**Table: 4**  
**Types of Interaction for Content Postings**

Type of interaction	Total number of postings	Percent	Rank
Acknowledgement	13	2.41	5
Question	222	41.19	1
Compare	12	2.22	6
Contrast	4	0.75	9
Evaluation	0	0	10
Idea to example	46	8.53	3
Example to idea	23	4.27	4
Clarification/elaboration	202	37.48	2
Cause and effect	9	1.67	7
Off topic/ faulty reasoning	8	1.48	8
<b>Total</b>	<b>539</b>	<b>100.00</b>	

Analysis of types of interaction for content postings as shown in Table 3 was also based on the 103 participants who were enrolled in the Educational Psychology component only. Results indicate that "Question" and "Clarification/elaboration" were the most common type of postings found in this online forum, with a total of 222 and 202 entries respectively (or 41.19 and 37.48 percent respectively). This means that in-service teachers in the study used the online discussion mainly for asking questions or seeking clarification and elaboration related to their syllabus content and assignment. In distinguishing between posting of "Question" type and "Clarification/ elaboration" type, "question" are like, "Dear tutor, can you explain in details (*sic*) what is system macro found in Bronfenbrenner Ecology theory?" Students simply place a question in the discussion board/forum in the hope of getting marks for participation. Most of the time questions in this category are very simple and straightforward. The explanation can be found from the module provided. Postings that are in the form of questions placed under the category of "Clarification/elaboration" are types that students seek further clarification from a point or issue that is being discussed. For example, "To strengthen a new behavior we use Decreasing Reinforcement Principle, that is, to encourage a child to continue performing an established behavior with few or no rewards. How do we know if the child is ready for it? Sometimes it may lead to extinction of behavior. What is your comment?"

The third most common type of posting, as indicated in Table 3, is "Idea to Example" type, generating a total number of 46 postings. It is important to note that despite being ranked the third most common type of posting, it only contributed 8.53 percent to the overall postings. This shows that the participants did not demonstrate much deductive reasoning in the EDGs. Ranked fourth is the "Example to Idea" type of posting or posting that demonstrates the inductive reasoning, at 4.27 percent. The other six types of interaction recorded percentages of less than 2.50; 'Acknowledgement' garnered 2.51 percent, 'Compare' 2.22 percent, 'Cause and effect' 1.67 percent, 'Off topic/Faulty Reasoning' 1.48 percent, 'Contrast' 0.75 percent and 'Evaluation' zero percent.



## **CONCLUSION**

The findings from this study corroborate with those cited in the literature review on the challenges of EDGs. Firstly, it was found that assessment was a vital factor in motivating students to participate in online discussions. Secondly, the objective of using online discussions to help learners to understand content better and to motivate them to achieve their potential remains to be realized. This may be inferred from the predominantly low-level type of interaction for content postings registered, as well as the 'mad rush' to fulfill the minimum number of postings as the dateline for online discussions drew near.

### **Implication**

Developers and practitioners of online learning systems need to be cognizant of the importance of effective EDG designs and also be mindful of creating a more structured design to help students develop higher order thinking during online discussions. As Wu and Hiltz (2004) appropriately stress, this would help decrease inefficiency and improve perceived learning.

### **Suggestion for further research**

Further studies may be carried out to determine the effect of a structured EDG on the type of interaction of postings. Comparisons could also be made between types of postings and regularity of postings registered by full time in-service course participants and those who study part time. Tutor initiatives and responses could also be analyzed to see the type of support that enhances higher order thinking and questioning amongst EDG participants.

## **BIODATA of CONTACT ADDRESSES of AUTHORS**

**Tina Lim Swee KIM**  
Research and Development Department  
Ipoh Teacher Training Institute  
31150 Hulu Kinta, Perak, MALAYSIA  
605-5331311 or 605-5332743  
Email: [tinalsk@gmail.com](mailto:tinalsk@gmail.com)

**Wong Kiet WAH**  
Department of Educational Studies  
Ipoh Teacher Training Institute  
31150 Hulu Kinta, Perak, MALAYSIA  
605-5331311 or 605-5332743  
Email: [wongkw@tm.net.my](mailto:wongkw@tm.net.my)

**Tan Ai LEE**  
Department of Educational Studies  
Ipoh Teacher Training Institute  
31150 Hulu Kinta, Perak, MALAYSIA  
605-5331311 or 605-5332743  
Email: [leeta@pc.jaring.my](mailto:leeta@pc.jaring.my)

## REFERENCE

Harasim, L. (Ed.). (1990). *On-line education: Perspectives on a new environment*. New York: Praeger.

Hisham Dzakiria & Rozhan Mohammed Idrus (2003). Teacher-learner interactions in distance education: A case of two Malaysian universities. *Turkish Online Journal of Distance Education*, 4(3). <http://tojde.anadolu.edu.tr/tojde11/articles/idrus.htm>

MacKinnon, G. R. (2000). The dilemma of evaluating electronic discussion groups. *Journal of Research on Computing in Education*, 33(2), 125 – 131.

Murphy, E., & Coleman, E. (2004). Graduate students' experiences of challenges in online asynchronous discussions. *Canadian Journal of Learning and Technology*, 30(2). [online]. [www.cjlt.ca/content/vol30.2/cjlt30-2\\_art-2.html](http://www.cjlt.ca/content/vol30.2/cjlt30-2_art-2.html)

Murphy, R., & Loveless, J. (2005). Students' self-analysis of contributions to online asynchronous discussions. *Australasian Journal of Educational Technology*, 21(2), 155 – 172. [online]. [www.ascilite.org.au/ajet/ajet21/murphy.html](http://www.ascilite.org.au/ajet/ajet21/murphy.html)

Oliver, M., & Shaw, G. P. (2003). Asynchronous discussion in support of medical education. *Journal of Asynchronous Learning Networks*, 7(1). [online]. [www.aln.org/publications/jaln/v7n1/v7n1\\_oliver.asp](http://www.aln.org/publications/jaln/v7n1/v7n1_oliver.asp)

Open University Malaysia. (2003). *The open and distance learning tutor: A practical guide*. (2<sup>nd</sup> ed.). Shah Alam: OUM.

Poole, D. M. (2000). Student participation in a discussion-oriented online course: A case study. *Journal of Research on Computing in Education*, 33(2), 162 – 177.

Tennet, B., & Hyland, P. (2004). The WebCT discussion list and how it is perceived. *Turkish Online Journal of Distance Education*, 5(3). [online]. <http://tojde.anadolu.edu.tr/tojde15/articles/tennet.htm>

Warren, K., & Rada, R. (1998). Sustaining computer-mediated communication in university courses. *Journal of Computer Assisted Learning*, 14, 110 – 119.

Wu, D., & Hiltz, S. R. (2004). Predicting learning from synchronous online discussions. *Journal of Asynchronous Learning Networks*, 8(2), 139 – 152.