FACTORS INFLUENCING INTERACTION AND COGNITIVE ENGAGEMENT IN ONLINE DISCUSSIONS IN AN UNDERGRADUATE COURSE OF NURSING

By

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ABSTRACT

Educational technology is now widely used in education and offers a great support in distance education. This research paper is a second part of the study which analysed the types and levels of cognitive engagement; this paper has identified the factors that affected on the cognitive engagement in the online discussion forums, within undergraduate nursing students of post basic nursing curriculum, in the course of Professional development Leadership and Management. Moreover, this was one of the subsidiary questions, focusing on possible contributing factors for variation in the interaction pattern. The study was of retrospective qualitative paradigm utilizing discourse analysis to understand the student's cognitive engagement in the online discussion forum, 24 students provided written consent to participate. The data were collected by online posts and focus group discussion. The analysis was done by utilizing Zhu (2006) framework of cognitive engagement and it was revealed that there was a low level of engagement. The Focus Group Discussion (FGD) reported that due to new mode of teaching, being very flexible, technology shutdown and less facilitation of faculty are the contributing factors. Thus, it was recommended that, more awareness is needed for students using online interaction, informing course expectations and feed forward for more effective participation.

Keywords: Low Cognitive Engagement, Online Discussion Forum.

INTRODUCTION

Over the past few years, educational system has been transforming its teaching learning principles with reference to technological advancement. Educational technology is now widely used in education and offers a great support in distance education. In this view the concept of blended learning is also moving at its peak, the blend of online mode with face to face class add a value to learning. The way an educator used to teach during a face-to-face class with variety of activities; similarly, they have a number of e-activities to assist students learning for example, online quizzes, puzzles, story boards, Online Discussion Forum (ODF), etc. These forums are considered as one of the effective ways to create discussion and they are effective in terms of more participation from the students, as each student of the class is instructed to participate. It is also supported by Karacapilidis and Papadias (2001) that, online instructional tools are effective because it

decreases the communication obstacles, as they likely occur in the face-to-face lectures, they added that online tools of instructions provides a forum to address issues through argumentative and collaborative discourse.

In order to assess the collaborative discourses which are associated with cognitive engagement, a study was conducted at a private nursing institute to understand the interactive online discussion in a course of Professional Development Leadership and Management offered to year II Post Registered Nursing curriculum which was offered in a Blended mode for the first time. This research paper is another part of the analysis which is related to the factors that affected on the cognitive engagement in the discussion forums. The aim of the course is to ensure critical thinking and enhance leadership skills in nursing students.

1. Purpose of the Study

With the fast moving world, the tool of discussion forums are

very powerful. On the other hand, it is also important that students feel engaged with it. The study was conducted on post basic nursing students who hold nursing diploma and have joined the undergraduate course to complete their bachelors degree. This was the class who was going through the transformation of utilizing blended learning as a strategy of teaching and learning for the very first time in the nursing department. The students were trained to use Moodle (software use for online study), and they have to read online instructions to participate in discussion forums or any other related activity. The basic purpose of the study was to identify the levels and types of cognitive engagement in online discussion forums with that we were also exploring experiences of using the new pedagogy for learning leadership and management concepts.

2. Objective of the Study

As facilitators of the course using a blended mode was new, the authors as researcher educator wanted to understand the way student participate in online discussions, as they can view it very well face-to-face. It is supported by literature that by using online instructional tools, they can engage students effectively through various activities that can be ranged from lower thinking to higher thinking order. On the other hand, it is challenging for educators to ensure that participation is taking place and second is to look at the quality discussion in the forum (Xia, Fielder, and Siragusa, 2013). The added responsibility of the facilitator is to smooth the process of online discussion forums by keep motivating students and helping them to bind with each other. Therefore, identifying the experiences of students who are first time using online discussions will also inform facilitators about assessing content and type of facilitations needed to sustain the strategy.

3. Literature Review

Blended Learning (BL) provides the opportunity for self-directed learning, the techniques of adult learning can be applied easily while using BL mode in higher education. The effect of real-time created virtually enable the sense of proximity to the learners, which can provide flexibility to learners at the same time. The time and place flexibility provided by these online environments are so conducive that anyone can learn at any time; thus, garnering an increasing number of learners (Moore and Kearsley, 2005; Simonson, et al., 2009). There is another concept of similar pattern known as 'flipping classroom', flipping the classroom has great potential towards higher learning outcomes, knowledge retention, critical thinking skills and improved clinical judgment (Towle and Breda, 2014). Hence, classrooms are more mediated today, than they were before. The present classroom scenario is built around the instructor utilizing Course Management Software (CMS), such as Blackboard and Moodle. Instructors are encouraged to use podcasts, online discussion groups and other technologies to engage and connect with students. On the other hand, BL facilitators also get an opportunity to practice learner-centered approach in the delivery of education (Oliver, Herrington & Reeves, 2005; Collis, 2003; Morgan, 2002). It is also important for the facilitators to know the right use of technology to enhance learning experience, especially for the millennial generation. Whatever the ways are used in any of the academic institute, the role of facilitator shall be to keep influencing the levels of Cognitive Engagement (CE) by encouraging and enabling discussions (Corno & Mandinach, 1983). On the other hand, the role of students is also important, as they are the ones who participate and demonstrate their CE, once the facilitator opens up the discussion to all. When a student feels independent for their own learning, they will handle new information and draw conclusions, the similar idea was shared by Sit, et al. (2005), that self-directed learning allows students to become accountable. Online discussions are therefore conducive as it provides length and breadth of learning, whereas, in a traditional classroom the time is fix and the content is pre-decided by the teacher.

Literature marks an important point on factors that hinder or enable fruitful threaded discussion. Yıldız and Bichelmeyer, (2003) highlighted that, if the students are guided for participation about measuring frequency of interaction with peers and teachers; it will have a positive effect overall and quality of assignments will be impacted. The reason for such positive learning is because asynchronous communication provides more time for understanding each other as peers, give time to reflect and create their own responses by bringing insightful reaction to others'

contributions (Black, 2005). Cheung and Hew (2008) have highlighted the factors into three different categories: attributes of the asynchronous online discussion, role of the facilitator and design of discussion activities. This means that cognitive engagement is also associated with the way the modules are designed and depends on the facilitator's participation too. There are other factors like sex, age, education level, occupation, residence in urban or rural areas, and region of residence (McLean and Morrison, 2000) which influence the level of participation. Moreover, a research conducted by Vrasidas and McIsaac (1999) who came to a conclusion that the course structure, class size, facilitator feedback, and ICT skills affected the interaction of students. Looking at the factor of role of facilitator, Smart & Marshall (2012) described that, there are two levels of questioning; one is non-inquiry and other is inquiry based questions. Non-inquiry based questions include recall, whereas, second draws students' thoughts. Facilitator's participation was found to be the most supporting factor in enhancing motivation to have higher order thinking during online discussion. It was concluded that, discourse factor holds a direct relation to the cognitive level including question level, complexity of question, questioning ecology, and communication pattern and classroom interaction. A similar view is provided by Vonderwell and Zachariah (2005) who found that factors influencing learner participation are technology and interface characteristics, knowledge of content, student roles and instructions given by teacher, and information overload. The association between participation and interaction and learning outcomes in a given online discussion has been found to be a complex phenomenon and more studies are needed to understand this phenomenon (Picciano, 2002). According to Zhu (2006), who has worked on cognitive engagement levels in online discussion, reported that discussions need continuous processes to provide time and opportunity for students to reflect and comment and therefore, through blended learning approach student contribute to self and others' learning by adding a comment on a given topic. Prinsen, Volman & Terwel, (2007) said that impact of student characteristics in online discussion requires more exploration as Computer Mediated Communication

(CMC) is changing day by day.

Factors like availability of information technology and the infrastructure within higher education institutions are the foremost elements of quality education through blended approach; this marks serious considerations by the institution to provide facilities for the delivery of knowledge and skills via blended mode. The site of this research study has provided handheld devices to the students and faculties, for an easy access of course modules. Studies have proved that, there are challenges and barriers associated with the use of blended learning approach in the academia. Ezeah (2014) have found in a research on factors affecting online discussion that designing the use of forums in modules, raising awareness about it, reorienting facilitators about the use of forum need to be consider, this will allow teachers to keep students motivated to participate in the discussion. Gilbert and Moore (1998) did a pilot project on online interactivity; they found that there is a problem at two levels in distance education which were social and instructional level. The study concluded that while informing online instructions, one should be careful to fine tune the process.

4. Methodology

4.1 Research Design

This was a qualitative study, conducted as a part of the course "Professional Development Leadership and Management" (PDLM) offered by private nursing institute of Pakistan. The study was of retrospective qualitative paradigm utilizing discourse analysis to understand the student's cognitive engagement in the online discussion forum for the first time in Pakistan. As it was a question in the study guide to ask about factors that helped or hinder the Cognitive Engagement (CE) in online discussion forum, this research paper will highlight that part only. For data analysis, discourse analysis strategy was used to analyze the text of students' posts. The primary purpose of discourse analysis is to explore the inter-relations between the words and the context in which the words are used. By establishing the links, researchers were able to determine the patterns of interaction and the levels of cognitive engagement of the learners.

Discourse analysis is defined as a particular way of talking

about and understanding the world, it may be related to exploring an aspect of the world (Jorgensen and Phillips, 2002). In this method, the text of the discussions was read and coded according to the framework by Zhu (2006). The categories or level of cognitive engagement defined by Zhu are: question, statement, reflection, mentoring and scaffolding. Each level is categorized by some characteristics and have specific kinds of interactions as explained within the selected analytical framework. Cognitive engagement was studied by analyzing and synthesizing the related posts that student have made during the threaded discussion. Therefore, it has improved the analysis by gaining insights regarding the responses of students in a threaded discussion, especially for rationalizing about a particular level/type of cognitive engagement in a discussion. As suggested by Zhu (2006), electronic discussions provides an opportunity for teachers and students to analyze each other is comments and generate a discussion. But there could be several factors which may enhance or hinder the participation in Computer Mediated Communication, even at university level.

4.2 Research Question

The main study question was:

How do threaded discussions (in the part of online forums) enable or hinder the student's level of cognitive engagement in a blended learning course (PDLM course)? There were three subsidiary questions about level, type, and possible contributing factors for variation in the interaction pattern.

4.3 Study Setting and Participants

The study setting was a private nursing institution in Pakistan, having Graduate and Undergraduate nursing and midwifery programs. It is the first institute in nursing education who started to bring transformation of mode of education delivery through blended learning approach. The participants were students of Post RN BScN, first year of the program. The course of professional development leadership and management falls in semester I of the first academic year. Once the ethical review committee has approved the research proposal, the class of 81 enrolled students of the courser were invited for study information

and seeking consent. 24 students provided written consent to participate. Then it was made sure that all of them had participated in online discussion forums and have received training of Blended mode of education. Study participants were belonged to different regions of Pakistan, having varied number of years of experience as a registered nurse.

4.4 Data Collection Tools

The researcher designed survey-monkey form attached in Appendix B, to collect demographic data. However, only (92.3%) of the participants completed the Online Monkey Survey tool for demographic details. For this paper, the Focus Group Discussions (FGD) (Appendix A) were the main source of data. The purpose of the Focus Group Discussions was to explore students' experiences, and learn about the contributing reasons during online discussion forums. The FGDs were conducted into three different groups of study participants; the data was transcribed, coded with type and level of CE. Each FGD had a maximum of 10 students. These were mixed groups, with both men and women. The discussions were tape-recorded with the group's permission; along with this notes were taken.

5. Study Findings

The researchers used discourse analysis which assisted in establishing the links to determine the patterns of interaction and the levels of CE of the learners, along with this, linguistic markers such as, choice of words, phrases, transitions in language, punctuations were used to code the data. Levels and categories of CE defined by Zhu (2006) were used as a guideline for discourse analysis of two modules of the course under study. The categories and levels include question type I and II, statements type I-VI, reflection type I and II, mentoring and scaffolding. Total 101 posts were read and assigned coding for type and category of engagement. The researchers first individually read the texts of the discussions, then they shared and compared the analysis of the individual researcher's work to develop consensus for the final report.

The data from FGDs are presented in this paper which inferred the factors which either helped or hindered the level of CE. The overall finding revealed that learner's friendly format which supports personal and professional

commitments, the role of the facilitator; ICT knowledge and frequent power shut down are contributing factors. The factors are as follows:

5.1 Resources and Training

One part of the data revealed that the training that was provided to the participants earlier was not that enough, as all of them had studied in a face-to-face mode in their diploma program and once they are back to study after a numbers of years of experience, where they have to transform their study habit according to BL mode. As one of the participants shared that, "The other thing is (continuing to participant 1's comment) that we don't know how to initiate the discussion, what kind of questions we need to ask to group so that the thread can be started or we can say we don't know how we can learn in blended learning. That's the lacking that we don't know how to learn". This marked the need to have more rigors training, as participants are coming from less privileged areas where computer and connectivity is a question. On the other hand, they also added the point that electricity shut down and fix timings of the computer lab in the organization also hindered the connectivity. But researchers noted that handheld devices were provided to them in the beginning of program, the reason could be that due to no electricity the internet was also shut which did not allow participants to connect at a given time. Being late in the discussions might have resulted in low motivation to participate as their points would be already covered.

Adding to that, lack of resources in library and content clarity was also hindering the level of participation as they said that relevant reference books were limited and therefore, content was cleared from whatever was available in the library, which resulted in low level of CE. Another part of training was using language as English was the second or third language for students and making meaning out of reading from given references was considered as non-supporting factors for a required level of the post as one participant stated that, "I would say that for instance one student has nicely written a post with the help of definition or article. It doesn't mean that particular student has understood completely… May be this student has understood more clearly than the person who has

paraphrased it nicely. And I don't know how the faculty is evaluating by look at this particular thing." Thus, it can be seen that reading and paraphrasing does not show that the content is clear to that particular student.

5.2 Leadership Role Modeling

Many of the participants had a view that leadership course is mostly understood by facilitator role modeling, as many of the modules were online and they wanted more face-to-face mode of teaching. As stated by one of the participants, "I go through the online courses that also help me, but personally for me it would be better for face-to-face rather than online classes especially for this course."

From one FGD group of 7-8 research participants, 7 responses were in the favor of face-to-face, because for them the demand of course is more facilitation and human touch. Another participant had view that learning content for leadership via online mode is difficult, therefore more face-to-face was preferred:

"I am engaged but the content of leadership and management is more difficult to make it clear through online discussions."

5.3 Blended Approach as Flexible

Few students had a feeling that due to more flexible approach, the modules are one for whole week, etc. and they felt that they started to linger on the things. For them the face-to-face was better option because of fix study hours, as they can study at a given time. The below statement is as follows, "Suppose if we have class we would say our parents that we have to go in the class but if we don't have class we just say that ok let's give this time to the family and then we will utilize our time. This also makes us less engaged".

There was another similar view that participant felt less engaged as they procrastinate the work. On the other hand there was a disadvantage share by participant that when they start late in the discussion forum, they have to read 40-50 postings to get the complete ideas of threaded discussion. As one student said, "I will see and 50 responses are there who will read this (asking to him) than I will close that window and I would not read this because of timing."

It was also shared from the participants that as BL provide

flexibility to study hours they are able to manage study and job at the same time. This approach has maintained their economic condition and they are able to bear the cost of studies. On the other hand, another perception was shared by the participant that, "I guess we haven't involved completely from being spoon fed to doing things completely so in a classroom setting you know that the teacher is going to teach you something and you know that you have to learn it because this is just one setting. In the blended learning course you have the feasibility of going off and on whenever you want to so you are more open to being relaxed about learning something." This informs the idea that BL approach is also setting a trend of coming out of spoon fed classroom, or the teacher centered classrooms.

5.4 Technical Problems

Electricity shut down, lesser time to read online discussion posts, unable to understand the crux of the question being asked, were all related to less engaging factors in online discussion forums. As a participant reported that as they were from backward area, although they were oriented with online study mode during the first two weeks of program (the orientation phase); they still feel less hands on especially with Moodle. Few students reported that power shut down leads to decrease their motivation as they were unable to save their responses to the discussion.

5.5 Faculty Facilitation

It was reported by research participants that more facilitation from the faculty of the course would enables more discussion. Participant had a view that they required more online input, to understand better, as they were the one who had already studied a general view of leadership and management course in their diploma of nursing.

5.6 Blended and Engagement

It was interesting to observe a contrast view on blended learning approach and concept of engagement. Some participants had a view that BL has improved their engagement whereas, others had an opposite understanding. A participant shared her views on blended learning approach and promotion of adult learning concept as, "I want to say that adult leaning is all about self-directed learning where you are whole and sole

dependent and accountable for whatever you learn. I believe that the essence come because if you are learning by yourself than you give more importance to that course…rather than somebody is teaching you or spoon feeding you… You will give importance to the subject in which you are engaged means you are whole and sole responsible for whatever you are gaining from it". This informed regarding improved engagement and coming out from a traditional classroom set up. On the other hand, the view of participant varied as they felt that due to more self-directed mode they were not taking the work seriously.

6. Discussion

The researcher had a view that the participants profile was of the leading cause of factors enhancing or reducing cognitive engagement. Majority of the participants were not from the millennial generation and therefore, the art to deal with technology may vary. Findings from the FGD revealed that although BL was one of the new approaches of teaching, but as the research participants were already had a diploma level course on leadership which was delivered face-to-face; they showed more preference to it. A study conducted in United Kingdom about factor analysis of online participation in discussion forum reported that there was very high level of inexperience for integration of technology into curricular design for both awards case studied (Ezeah, 2014). The point to ponder is the relation between inexperience in using technology and being before millennial generation. As all the participants were showing a lot of comfort in the face-to-face version, the researchers come to this conclusion. Similar idea was found by Webb, Gill, and Poe (2005) that the newly developed online skills and more use of online discussion may have contributed to these positive findings. It can be inferred that students may feel motivated to use the newly learnt skills. Another reason for this conclusion was one of the current study finding highlighted that majority of the participants including males and females showed confidence in web browsing (72.7%) and use of social media (63.6%). On the other hand, 31%-41% were comfortable in use of MS Word, Power Point and Moodle. This finding suggests that, the lack of knowledge and comfort in these areas also contributed to the low CE

amongst the participants, and therefore, they showed more comfort with face-to-face mode. It is important to notify that, there was no course drops out as reported by the research of Zhu (2006). Participants of the research adhered to the course attendance policy and completed all the graded assignments. This may mark a level of engagement, but the most assumed reason of this type of engagement could be the non-reimbursable course fee and anticipating about low GPA (Asif, Vertejee & Lalani, 2015).

Second reason for having low engagement level will be high number of posts, as participants reported that they tend to procrastinate the work and when they get online they found more number of postings done by course participants, which might not have given chance to them to read properly and respond accordingly, therefore as per Zhu scale of CE, their level was in lower order thinking.

The third factor could be the facilitator participation, as they have mentioned that they wanted that faculty should participate more, whereas the literature support that role of the facilitator is designing of discussion activities (Cheung and Hew, 2008). The researchers thought that because of being from a traditional mode of teaching, the research participant had a similar or high expectation of having faculty at all the times. Another view can be that faculty cannot be online for 24x7, as participants said that BL was a flexible mode they have continued to study and work at the same time so, if a student is online after his night shift, he/she cannot expect the availability of the facilitator. Yet, researchers recommend that if in the beginning of the course the students are informed about the facilitator's role and number of times the participation is expected then this factor could have overcome it.

7. Study Limitation

As all the students did not consent to participate in the study; the complete view of factors hindering was not achieved. There could be some more stories of participants regarding online learning for the first time. The other limitation was that as the course was offered first time and soon after completion of it the data was collected, the researcher felt that it can be studied after few more semesters to find out the data in a serial manner.

Conclusion

It is to conclude that in the world of technology the educational needs of the learners and facilitators may vary, thus, it is important for Higher Education organizations to keep assessing the needs and respond it positively. Use of technology at times look highly important, but it is to question that are we hindering the learning or supporting with advancement of technology. At the same time it was found by the researcher that one must analyze content, orientation towards use of technology and self-capacity to make learning happen.

Acknowledgements

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Appendix A:

Focus Group Interview Guide

Title: Students interaction and cognitive engagement in online discussions in PDLM course at Aga Khan University School of Nursing and Midwifery- Karachi, Pakistan.

The guide is divided into three parts including engagement, exploration and exit questions. The discussion will be generated on the following questions under each heading:

Engagement Questions

1. When you learnt that the PDLM course will be offered on Blended Learning approach, what came your mind?

Exploration Questions

2. What is your (study participant) perception of self-engagement in BL approach of learning?

3. What are your experiences of threaded discussions in online modules?

4. How threaded discussion enabled or hindered your level of cognitive engagement?

5. What challenges did you encounter while on threaded discussions?

Exit Question

6. Would you like to add/share anything that we have not covered in the above discussion?

Appendix B:

General Information Demographic Data

1. Name (Optional)

[   ]

* 2. Gender

○ Male
○ Female

* 3. Age

○ 18 - 25
○ 26 - 32
○ 33 - 40
○ 41 +

Online Learning experiences

* 4. Do you have any prior experience of studying in an online mode?

○ Yes
○ No

* 5. Do you have any prior experience of studying in a blended mode?

○ Yes
○ No

* 6. Do you have any prior experience of participating in an online discussion?

○ Yes
○ No

7. If YES (for Q#6), share details of your participation in an online discussion forum.

[   ]

Information and Communication Technology (ICT) proficiency

* 8. How confident are you in using the following ICT tools?

	I don't know about it	Little confidence	Somewhat confidence	Reasonably confidence	Very confidence
Word processing	○	○	○	○	○
PowerPoint	○	○	○	○	○
Excel	○	○	○	○	○
E-mails	○	○	○	○	○
Internet for searching information (e.g. Google)	○	○	○	○	○
Moodle	○	○	○	○	○
Wiki	○	○	○	○	○
WebEx	○	○	○	○	○
Creating an audio/video clip	○	○	○	○	○
Social form (e.g. facebook)	○	○	○	○	○

English Language Proficiency

A. Rate your English Language proficiency in the following three skills/domains.

	Basic	Proficient	Advanced
Writing	○	○	○
Reading	○	○	○
Conversation	○	○	○

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