Interaction and Cognitive Engagement in Online Discussions in Professional Development Leadership and Management Course at a Private Nursing Institution

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Abstract

In the Post RN BScN curriculum, one of the courses "Professional Development and Leadership (PDLM)" was offered as blended mode for the first time. In order to explore the students' interactions and Cognitive Engagement (CE) in Online Discussion Forums (ODFs), the research team conducted a retrospective study for the first time at a private nursing institution of Karachi-Pakistan. The study was conducted by utilizing the retrospective qualitative paradigm of discourse analysis to understand student's CE in ODFs. The study has addressed the following one main and three subsidiary research questions: 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)? All the course enrollees were invited to participate in the study; 24 of 81 students provided the written consent to participate in the study. The participants of the research study were both males and females; of which males were (20.8%) whereas females were (79.2%). However, only (92.3%) of the participants' completed the Online Monkey Survey tool for demographic details. The data was collected after the university's ethical review committee's clearance. The scripts of ODFs from two online modules (named as Module A & B) were used for this study, which were triangulated through Focus Group Discussions (FGDs). The researcher used discourse analysis to explore the interrelations between words and the context in which the words are used. This assisted in establishing the links to determine the patterns of interaction and the levels of CE of the learners. Levels and categories of CE defined by Zhu (2006) were used as a guideline for discourse analysis of the discussion forums of two modules. Categories were assigned various levels to understand the specific kinds of interactions as explained within the selected analytical framework. The categories and levels include question type I and II, statements type I-VI, reflection type I and II, mentoring and scaffolding. It is observed from the results that majority of the participants used statements type I which is responding to the direct questions, whereas, seeking clarifications (either question type I or II) was not much observed. Mentoring and Scaffolding are higher levels of CE, however, only less number of responses observed in both the modules A and B. Moreover, study participants reported high level of engagement with the positive role of faculty facilitation and felt more comfortable in participating through a virtual learning environment. It was recommended to set netiquettes, to have sound training to those learners whose ICT skills need improvement and to consider in-depth key informant interviews with each research participant soon after they posted a comment on ODF, will bring more insight in understanding CE.

Keywords: Cognitive engagement, online discussion forum, blended learning

1. Introduction

Technological advancement has helped the educational instructors to move from face to face classroom discussions to online discussion forums. This transformation required research to understand its underpinnings for its improved application in education world. In order to analyze the usage of technology in nursing education, a research has been planned in a private nursing institute. The selected institution has been a trend setter in nursing education in Pakistan, to scale-up the standard of nursing profession locally, regionally and internationally. Since its inception in 1983, it has been offering graduate and undergraduate nursing programs in the traditional mode of face-face classroom setting. However, with the passage of time and increased student population; the university is now gradually moving towards Blended Learning (BL) approach. Several courses have been offered on the new pedagogy, including "Professional Development and Leadership in Healthcare (PDLM)" for the first time, it is offered as the core course in Post

Registered Nurses (Post RN) program.

The course aims to develop nurses' insight and respond to contemporary trends in the nursing profession. Moreover, it demands the critical thinking and reasoning skills for improvement in healthcare management. It is a theory based course with BL mode, it was planned to offer few modules as part of an online work and the rest to be offered face to face. Since the course was offered in the Blended format for the first time and discussions were going to be online; the course team conducted a study to explore students' interactions and cognitive engagement (CE) in Online Discussion Forums (ODFs). To evaluate the effectiveness of the online discussion approach and to understand the cognitive engagement in the absence of facilitator; the study would support in evaluating students' level of cognition during learning process in asynchronous discussion forums. It has also added to the body of knowledge for sustainability of offering PDLM course blended approach format.

2. Literature Review

2.1 Blended Learning Approach

BL as a new pedagogy has provided grounds for academic institutions to expand the learning boundaries beyond the physical wall, which includes face to face and online mode together. Furthermore, it provides opportunities for self-directed learning and provides a control over course content to the learner end. In addition to it, BL also gives an opportunity for the facilitator to practice learner-centered approach in the delivery of education (Oliver, Herrington & Reeves, 2005, Collis, 2003; Morgan, 2002). Academic institutions are moving from face to face delivery of knowledge to hybrid methods of instructions (Maley, Harvey, Boer, Scott, & Arena, 2008; Ruiz, Jorge, Mintzer, Michael, Leipzig, & Rosanne, 2006). BL includes synchronous as well as asynchronous technologies of learning; where synchronous face-face interaction in real time; whereas, asynchronous interaction occurs with participants engagement at a convenient time and place. (Dominique & Elizabeth 2011, Skiba, Connors, & Jeffries, 2008; Duhaney, 2004). Moreover, the facilitator's role in BL or in traditional mode is to influence the levels of CE considers as encourager and discussion enabler (Corno & Mandinach, 1983); which can be described in three categories including; questioning, communication pattern and classroom interaction (Gee, 2001). Smart & Marshall (2012) reported two levels of questioning, including non-inquiry and inquiry; the first one deal with the questions that involves recall, whereas second elicits students' thoughts. It is also reported that facilitator's participation supports in enhancing motivation to retain higher order thinking. The study's conclusion suggested discourse factor was directly related to the cognitive level which includes question level, complexity of question, questioning ecology, and communication pattern and classroom interaction. Wysocki, C.D. (2007) highlighted in her dissertation on the importance of the student's cognitive and collective interaction at the level of faculty/student and peer. Students are encouraged to participate at their pace, including even those who never participate in large face to face classroom either due to shyness or lack of readings. The discussion generated is established as continuing processes provide time and opportunity for students to reflect and comment; thus, through blended learning approach student contribute to self and others' learning by adding a comment on a given topic (Zhu, E. 2006).

2.2 Cognitive Engagement

Engagement is defined as learners' active involvement towards self-development. Fredricks, Blumfeld & Paris (2004) described it as behavioral, cognitive and emotional engagement; however, this research focuses on cognitive engagement of students in a computer mediated communication (CMC). It is the learner forte in the search of information, and attempt to contextually analyze and understand the content for appropriate decision making (Zhu, 2006). Learners with the low CE attribute a high degree of dissatisfaction and develop undesirable experiences which results in learners drop out of the courses. (Greenwood, Horton, & Utley, 2002; Legters, Balfanz, &McPartland, 2002; Perie, Moran, &Lutkus, 2005).

CE assessments in online courses allow independent learning and increased opportunities of participation. The term engagement is usually applied when learners actively participate in an activity resulting in high achievement of learning outcome. Marks (2000) define CE as, "A psychological process involving the attention, interest, investment, and effort students expend in the work of learning" (pp. 154-155). In addition, Fredricks, Blumfeld & Paris (2004) stated that CE is the mental efforts for desire to go beyond the requirements. It is referred as learner involved in looking for information, analyzing, interpreting and summarizing it to develop critical arguments for sound decision making (Zhu, 2006). Dunleavy & Milton (2009) explored student engagement and its implications for teaching and learning; they separated academic engagement from cognitive engagement, and termed cognitive engagement as "Intellectual Engagement" (p5). Students exercising cognitive activities with higher order thinking are more likely to produce meaningful experience of learning and improved performance (Greene et al., 2004, Zhu et al., 2009).

2.3 Challenges of Teaching on Hybrid Format

Information technology and the infrastructure are the foremost elements of quality education through blended approach; it is therefore requiring serious considerations by the institution to provide and built the set up for the delivery of knowledge and skills via blended mode, one of the examples of such efforts was the provision of handheld devices to the students and faculties in our institution of nursing. On the other side, studies proved the challenges and barriers associated with the use of blended learning approach in the academic world. These are discussed under four categories including learner's choice for human interaction and self-regulation, facilitation and support for course participants, availability of communication technologies and cultural adaptation (Bonk & Graham, (in press), Deltsidou, Gesouli-Voltyraki, Mastrogiannis, & Noula 2010; Fetter 2009).

3. Methodology

3.1 Research Design

The study employed the retrospective qualitative paradigm of discourse analysis to understand the student's cognitive engagement in the online discussion forum for the first time in Pakistan. The term discourse analysis is generally a useful method for collecting information regarding subjective meanings and objective reality of a conversation (Talja, 1997). It concentrates on the analysis of knowledge formations, which organize institutional practices and societal reality on a large scale (Talja, 1997). Therefore, this methodology will allow gaining insights regarding the responses of students in a threaded discussion; for example, understanding the rationale about a particular level/type of cognitive engagement in a discussion. Discourse is centripetal in generating the ideas, developing social processes, and phenomena that make up our social world. It indicates a particular view of the language (spoken or written). As our core data was coming from the online interaction that student have had in discussion forums, the concept of discourse analysis was helpful. As suggested by Zhu (2005) that electronic discussions provide a platform to students and teachers to share their opinion and help each other to analyze their comments, thus the discourse which was generated among the team of students and teachers was utilized for this research in selected modules of the course. Thus, there could be difference in level of cognitive engagement in the online discussion which will be assessed by discourse analysis.

3.2 Research Questions

The study has addressed the following one main and the three subsidiary research questions:

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)?

- What levels of cognitive engagement are witnessed in asynchronous online threaded discussions of PDLM course?
- What types of interactions, pertaining to these levels, have taken place in asynchronous online threaded discussions of PDLM course?
- What are the possible contributing reasons for the variations in cognitive engagement and interaction patterns?

3.3 Study Setting and Participants

The study was conducted at the private nursing institution in Pakistan for the professional development course enrollees of Post RN BScN year I semester I; after receiving an approval from the university's ethical review committee. Participants had varied number of years of experience and belonged to different regions of Pakistan. All the students were invited to participate in the study; 24 of 81 students provided written consent to participate. It was made sure that all of them had participated in online discussion forums. All the students were also trained for learning via BL approach in their orientation week of the university.

3.4 Data Collection Tools

Demographic data was collected with the researcher designed survey-monkey form; which was made available online for research participants only. The primary source of data was learners ODFs posts; in the course duration all the 81 students were divided into small groups of 13 each. To moderate group discussion, one faculty member was assigned to two groups throughout the course duration. This was done intentionally for proper facilitation by the faculty. Then only the posts of study participants were analyzed by assigning name codes for anonymity purpose as well as to ease the process of data analysis. The scripts were extracted from two online modules (named as Module A & B) for this study.

The purpose of these discussions for the course enrollees included; a) Developing a sense of inquiry amongst them; b) Sharing experiences in relevance to the topic and c) Contributing to self and peer learning. Participants' interaction and level of cognitive engagement through discourse analysis was carried out by application of Zhu (2006) framework which was triangulated through Focus Group Discussions (FGDs). The primary purpose of FGD is to understand possible

contributing reasons for the variations in cognitive engagement and interaction patterns. The FGDs were conducted into three different groups of study participants; the data was transcribed, coded with type and level of CE (as seen in table 6) and then analyzed.

4. Findings of Participants' Demographic Data

Study participants included both males and females; of which males were (20.8%) whereas females were (79.2%). However, only (92.3%) of the participants' completed the Online Monkey Survey tool for demographic details. Therefore, all the demographic data presented here will be of those study participants only. Those who completed demographic details also had both male and female participants; amongst them males were (22.7%) whereas, females were (77.3%). Amongst the total number of participants' (54.6 %) had prior knowledge of BL mode of learning, whereas (45.4%) had not. The ICT knowledge including MS Word, MS Power Point, Web Browsing, use of Social Media and the knowledge of Moodle (as it was used in the selected research site) was also assessed. Refer Table1-5 for details, all figures in given tables are calculated as percentages.

Table 1. Participants' demographic data

Gender	Total	Age range
Male	7 (29.16%)	26-32
Female	17 (70.83%)	26-32

Table 2. Participants ICT skills in MSWord and Power Point

Gender	MS Word					MS Power point				
	DK	LC	SC	RC	VC	DK	LC	SC	RC	VC
M (22.7%)			9.1	9.1	4.5			9.1	9.1	4.5
F (77.3%)	9.1	4.5	4.5	22.7	36.4		9.1	13.6	27.3	27.3
Total	9.1	4.5	13.6	31.8	40.9		9.1	22.7	36.4	31.8

Table 3. Participants ICT skills in Web Browsing and Moodle

Gender	Web Browsing (Google)					Moodle				
				RC		D			RC	
	DK	LC	SC		VC	K	LC	SC		VC
M (22.7%)				4.5	18.2			4.5	13.6	4.5
F (77.3%)		4.5	4.5	13.6	54.5		9.1	13.6	18.2	36.4
Total		4.5	4.5	18.1	72.7		9.1	18.1	31.8	40.9

Table 4. Participants exposure to social Forums

Gender	Knowledge & access to social forums					Developing Audio/video clips				
	DK	LC	SC	RC	VC	DK	LC	SC	RC	VC
M (22.7%)				9.1	13.6			4.5	9.1	9.1
F (77.3%)		9.1	13.6	4.5	50	4.5	18.2	9.1	22.7	22.7
Total		**9.1**	**13.6**	**13.6**	**63.6**	**4.5**	**18.2**	**13.6**	**31.8**	**31.8**

Table 5. Participants skills in developing Audio/Video Clips

Gender	Developing Audio/video clips				
	DK	LC	SC	RC	VC
M (22.7%)			4.5	9.1	9.1
F (77.3%)	4.5	18.2	9.1	22.7	22.7
Total	4.5	18.2	13.6	31.8	31.8

Key for tables 1-5 M-Male, F-Female, DK-Don't know, LC-Little confident, SC-Somewhat confident,

RC-reasonably confident, VC-Very confident.

4.1 Findings of Online Discussion Forums

The researchers used discourse analysis to explore the interrelations between the words and the context in which the words are used. This assisted in establishing the links to determine the patterns of interaction and the levels of CE of the learners. While analyzing, researchers used linguistic markers such as, choice of words, phrases, transitions in language, punctuations to code the data. Levels and categories of CE defined by Zhu (2006) were used as a guideline for discourse analysis of the discussion forums of two modules. Categories were assigned various levels to understand the specific kinds of interactions as explained within the selected analytical framework. 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 read the texts of the discussions, individually; followed by sharing and comparing of the individual researcher's work to develop consensus for the final report. The description of the framework can be referred from the table below. Refer Table-6 (Discourse Analysis of Two Modules from PDLM course), presenting numeric outcome of participants' level of cognitive engagement.

Table 6 Discourse Analysis of Two Modules from PDLM course

Category	Type	Characteristics	Module A		Module B		Module A & B	
			Responses 58	%	Responses 43	%	Responses 101	%
Question	I	Seeking information (Vertical) Correct answer	1	1.7	1	2.3	2	1.98
	II	Inquiring/initiating the discussion with no definite answer	1	1.7	0	0	1	0.99
Statement	I	Responding- direct response to previous post	16	27.5	5	11.6	21	20.79
	II	Information- related to the topic	3	5.1	13	30.2	16	15.84
	III	Explanatory- factual information with limited personal opinion	10	17.2	8	18.6	18	17.82
	IV	Analytical – information about the message	8	13.7	9	20.9	17	16.83
	V	Synthesizing- summarizing	1	1.7	2	4.6	3	2.97
	VI	Evaluative- judgmental opinion on discussion	8	13.7	2	4.6	10	9.90
Reflection	I	Reflective of change in personal behaviors and opinion	0	0	0	0	0	0
	II	Reflective of using the cognitive skills to accomplish task	6	10.3	2	4.6	8	7.92
Mentoring	I	Mentoring- facilitating on concepts development	2	3.4	2	4.6	4	3.96
Scaffolding	I	Guiding statement and suggestion (supportive statement)	2	3.4	0	0	2	1.98

Data from the discourse analysis of two modules revealed following significant observations of the study participants in ODFs. It is observed from the results that the majority of the participants used statements type I which is responding to the direct questions, whereas seeking clarifications (either question type I or II) was not much observed. Moreover, 46 of 58 responses in Module A were related to various statement types. This leaves on 12 responses in other categories. Furthermore, it is also observed that none of the participants used Reflection type I.

The similar pattern was observed in Module B where maximum responses fell in all statement types; and none of the participants used scaffolding as means of interactions for CE.

Hence, the overall responses also demonstrated the same pattern of Module A and B.

Mentoring and Scaffolding are higher levels of CE, however, only fewer number of responses observed in both the modules.

4.2 Findings of Focus Group Discussions (FGDs)

Small groups were formulated to conduct FGDs for data triangulation as stated before; each FGD had 10-12 participants including both male and female. The FGD was directed by two research team members; one was involved in discussion with participants and the other was to take process notes; at the same time the FGD was tape recorded for transcription at a later stage. The purpose of FGD was to explore students' experiences and identify contributing factors which enabled or restricted participation in ODF. The data from FGDs inferred the factors which either raises or lowers the level of CE includes; learner friendly format which supports personal and professional commitments, the role of the facilitator; ICT knowledge and frequent power shut down.

The results from FGD revealed that students find themselves more engaged as it gives them chance to work while studying. Participant # 8 in group 1 said that, "…it is a good opportunity for those who want to take two things at a time; they want to learn, study and work as well. BL provides flexibility to work and to study to bear expenses."

Moreover, study participants reported high level of engagement with the positive role of faculty facilitation and emphasized on the importance of feedback, especially when it was related to issues with ODFs. However, others had a different view of the faculty role in learning. One participant shared that in face to face classroom their queries were promptly responded due to the real time presence of a facilitator. Whereas, in the BL format of learning the virtual presence of facilitator at times is a key challenge for high level of CE.

However, ICT knowledge presented to be a challenge in lowering the level of CE, one of the participants in group 2 said, "…they were not technologically oriented Moodle was a really problematic activity…"

Power shut down was another factor which was reported to decrease the level of CE. Web browsing was a challenge with sudden power shutdown; hence broke the temperament of online participation and resulted in fewer rigors.

5. Discussion

A study by Zhu (2006) reported students' dissatisfaction and course dropout as a result; this suggests serious implications of dissatisfaction due to low CE. However, in the current study, researchers did not face any such findings; although there was a high level of discontentment expressed by study participants due to several factors. Especially they reported to have compromised learning experience due to those earlier mentioned restricting factors; on the contrary they continued studying and completed the course. The researchers assumed that this was due to several other reasons which overpowered the decision of course dropout. Those reasons could be a non-reimbursable course fee; times spent on the content covered; lack of future opportunities; anticipating low GPA in the overall grading etc. A very significant finding from the ODF was the meager use of higher order thinking categories such as questions, scaffolding and reflections as given in Zhu framework. Most of the participants used various statement types to either share the information or respond to the earlier statements. This finding suggests the lack of awareness of the participants of the various categories while in an ODF (refer table 6 for details).

It is important to note that the study/course participants were those who had completed their diploma in nursing and now studying an advanced level nursing program. This is significant because past researches revealed that prior knowledge of the subject may result in higher levels of the CE (Zhu, 2006). However, the current study results infer fewer numbers of posts in higher order thinking and demonstrate low CE amongst the participants. The researchers argued that though the participants had prior knowledge of the subject; yet there are factors which lowered the CE. Thus, the finding suggests the impact of the challenges such as frequent power shut down, poor hands on experience in the ICT and virtual presence of facilitator discussed under FGDs play significant role in lowering the level of CE in an ODF. Therefore, the prior content knowledge alone is not the indicator or the yardstick for the CE rather there are additional factors that should be considered when measuring the level of CE among the participants. Another grey area revealed in the current study was acquaintances with ICT skills for ensuring a high level of CE. Some of the participants were from remote areas of the countries where the ICT is a big challenge and participants are less skilled in it. This resulted in low CE for those who were less skilled compared to those who were proficient. Thus, participants from remote areas needed more technical support on an ongoing basis.

This is also verified by the study finding that reveals the majority of the participants, both males and females, though we were very confident in web browsing (72.7%) and social media (63.6%). However, they did not demonstrate the comfort in Microsoft Office program such as MS Word, Power Point and the use of Moodle. Participants who were very confident in these areas ranged from 31%-41% only. This finding suggests that the lack of knowledge and comfort in these areas also contributed to the low CE amongst the participants.

Some participants also expressed the comfort with the new pedagogy as it gives them room to be cognizant with other personal and professional commitments while studying. These participants also verbalized the comfort and convenience while studying at hybrid mode and they reported high degree of self-directed learning attitude. It is also supported in literature that high level CE and motivation can be assured with the use of self-regulated learning strategies, such as paying attention, connection, planning, and monitoring (Turner, 1995; Appleton, Christenson, Kim, & Reschly, 2000; Newmann et al., 1992). Further motivation and CE go hand in hand and complement each other (Helme & Clarke, 2001). In addition, it was also a great support to those who were generally uncomfortable in participating in face to face classroom in comparison to the virtual learning environment. Participants' views on virtual presence of a facilitator on ODFs varied; as some were of the view that the physical presence of a facilitator in the face to face classroom helps in prompt clarification. However, few of them also appreciated the fact that even virtual presence and facilitation proved to be of great help in assisting them and providing clarification of the concepts. Though the pedagogy is learners friendly; however, it is also important to scaffold the course aims and objectives while online content delivery.

6. Recommendations

Although this research has created a realization that there are some factors that play vital role in learners CE, similarly, it also builds insight amongst the researcher to identify the strategies to overcome the barriers in online learning, especially training those learners whose ICT skills are already compromised. Moreover, setting netiquettes sounds to be important to support both the course participant and the facilitator in an online course. It allows room to clarify the expectations. Furthermore, the researchers as facilitators of the course kept learners, informed of the course goals and objectives and addressed their queries, simultaneously. However, the participants' were not oriented to the measures that increase the level of CE amongst them. Therefore, it is important to familiarize any course enrollee to be aware of the measures that assists in integrating the higher order thinking. Thus, the research on CE in an online discussion forum has paved the way for future research developments in this area. Although, the researchers were able to understand the extent of CE using Zhu framework yet it is needed for the

future researches to focus on specific reasons as discussed earlier, which may result in low or high CE in an online discussion.

Participants discomfort with the online course was also one of the key issues identified; which can be addressed by identifying the course candidate's capability or hands on in an online work. This will provide an opportunity to explore and plan ahead the need based orientation program on or before course enrollment. At this stage netiquettes is considered as an important component of orientation programs. Moreover, future researchers in the identified area may consider in-depth key informant interviews with each research participant soon after they post a comment on ODF. This will decrease the recall bias by the participants and will inform the reason behind their nature of participation in an ODF by either responding or not to a colleague's post. This can be an important area of consideration because the researchers believe that all participants did not get the chance to share their viewpoint.

7. Study Limitation

All the course enrollees did not show their consent to participate in the study; this was one of the big challenges faced. The participation of all the course enrollees would have provided richness to the data and would have reduced the gap in linking the chain of posts and drawing the true meaning out of it. Secondly, the current study determined the facilitator's role in preparing for the use of higher order thinking while studying on blended mode; which hampered the high level of CE amongst the course enrollee. The recall bias created by conducting the FGD at the end of the course; the researchers inferred that the participants may have forgotten about the reasons of posts which they created on ODFs. Further, those study participants who were inactive on ODF were not followed-up or encouraged to take an active role. In addition the reasons for such behavior were not explored too.

8. Conclusion

The emerging pedagogy of blended learning in Pakistan is greatly in need to support work based academic models. Therefore the current study draws attention to the factors which enable CE amongst the participants to be considered while planning to offer the courses on this pedagogy. Hence, the academic preparation of faculty members with continuous motivation and awareness sessions are needed in addition to the appropriate technological infrastructure in place. Netiquettes paly important role in a hybrid mode of teaching and learning; therefore the participants' attention should be drawn to follow them while studying in hybrid mode. Finally, the success will also be dependent on continuous effort in gathering feedback from the learners and self-assessment to improve the courses offered in BL mode.

Acknowledgements

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