School of Nursing & Midwifery   Faculty of Health Sciences

2-2017

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Creating Enabling Environment for Student Engagement:

Faculty Practices of Critical Thinking

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Abstract

Critical thinking (CT) is considered an important attribute in practice disciplines and faculty members in nursing, medicine, and education are expected to facilitate the development of CT in their graduates so that these individuals can be critical, reflective, competent, and caring professionals and service providers. When students are actively engaged in their learning, and classrooms have an enabling environment, CT is promoted. Teachers must reflect upon their pedagogy when students do not participate in stimulating discussions, or asks questions in class. Research suggests that lack of understanding of CT affects teachers' CT practices in the classroom. Literature supports that teaching learning activities and opportunities that emphasize encouragement of students' participation in classroom fosters communication, student engagement, creativity, self – directedness and CT. Thus, it is vital to explore the teaching practices of educators that promotes or hinders students' CT. This study aimed to identify perceptions and practices of CT among educators from the disciplines of nursing, medicine, and education in higher education in Karachi. A descriptive exploratory design was used in the study. Using a purposive sample, 12 educators participated in this study. Data was collected via in-depth interviews and classroom observations. Data was analyzed manually; four major themes emerged from the content analysis. This paper focuses on the findings of educators' practices of CT in a classroom setting, which indicates that teachers needs to be aware that an enabling learning environment is necessary to promote students' CT. Moreover, the educators should create an enabling learning environment by focusing on the physical, psychological and intellectual components to promote CT in students.

Keywords: Enabling environment, Student engagement, Faculty practices, Critical thinking

1. Background of the Study

Critical thinking (CT), communication and problem solving skills are obligatory for health professionals in all discipline (Dipiro, 2009). Nurses and doctors need to have CT skills to face new challenges and confront with complex health care system. Higher education institution should provide students with high quality of education and allow learners to discover new ways of getting information, transforming knowledge and constructing meaningful learning (Pascarella, Seifert and Blaich, 2010). Quality education means development of CT skills; thus quality education can only be enhanced through use of different active learning strategies (ALS) which facilitate development of CT in students (Kostovich, Poradzisz, Wood & Brien, 2007). Various authors (Duron, Limbach, & Waugh, 2006; Pithers & Soden, 2000; Siddiqui, 2007; Van Amburgh, Devlin, Kirwin, & Qualters, 2007) claim that teacher oriented didactic lectures are commonly used in higher education for content delivery which do not encourage CT. Educators need to come up with creative learning strategies which are suitable for today's generation, as traditional learning strategies are unable to cope with emerging challenges and information technology age in health care systems (Arhin & Cormier, 2007).

There is a lack of an indepth understanding amongst educators in terms of what is CT and, what are CT practices in a classroom. Zygmont and Schaefer's (2006) study findings revealed that teachers' lack of clarity about CT affected the way they taught CT to their students. They highlight a grave need to explore the common understanding of what CT means and what teaching practices promote CT in a classroom. Choy and Cheah's (2009) study findings reveal that educators' teaching practices are influenced by their perceptions of CT and faculty who possess a better understanding of CT, demonstrate a better ability to utilize ALS to promote CT in their learners. Studies reveal that

most educators understand the importance of incorporating CT in their learners, but they are unable to do so during the given class duration, as they face dilemma of taking time away from content teaching and investing in use of ALS (Van Amburg et al., 2007, Zygmont & Schaeffer, 2006). Research findings report that limited time, lack of student interest, large class, and delivery of too much content in limited time are main barriers faculty encountered in implementation of ALS (Nabors, 2012; Michael, 2007; Miller & Metz, 2014).

In Pakistan, the focus of education for students has mainly remained on transmitting structured knowledge and superficial learning rather than engaging students for acquiring deeper CT. Use of traditional face to face (F2F) didactic teaching methods with large class format (LCF) teaching, are common in Pakistani schools, where the teacher acquires an information giver role, and students take on a passive learner role. Traditional teaching methods coupled with didactic teaching create a disabling classroom learning environment and suppress students; hence, they remain passive recipients and listeners. There is a need for paradigm shift from teacher centered approach to student centered approach. This shift will assist learner to focus on the application of knowledge, evaluation of information and, creation of new knowledge rather than on basic recall, comprehension and acquisition of superficial knowledge.

Teachers need to explore alternatives of traditional classrooms whereby students' inquisitiveness is encouraged and they are allowed to ask questions. Clark, Nguyen, Bray, and Levine (2008) establishes that traditional teaching strategies which involve only power point presentation and lecture are considered passive learning strategies and thus are ineffective in development of CT. Gavaza, Campbell and Mullins (2012) study showed that students' learning is facilitated, when more time is dedicated to ALS. Use of ALS will lead to a paradigm shift in nursing education from passive rote learning to deeper active learning and CT (Brown, Kirkpatrick, Greer, Matthias & Swanson, 2009). Studies reveal that faculty members who showed greater understanding of utilization of ALS, wished to incorporate CT promoting strategies in classes (Davis & Desselle, 2013). Ozkan (2010) reports that faculty who are not aware of CT and its strategies had difficulty promoting CT skills in the classroom. It therefore becomes more important for teachers to have clarity of CT skills and ALS that facilitate an enabling learning environment in the classroom and promote CT, creativity, and questioning amongst students.

In Pakistan, several studies have been done on utilization of ALS to promote CT and problem solving. According to Gul and Boman (2006), concept map is an effective teaching strategy that assists learners in problem solving, decision making and developing plan of action. Likewise, Khan, Ali, Vazir, Barolia & Rehan (2008) study showed that students perceived problem based learning and concept mapping as effective learning strategies which enhanced their CT. These findings concur with Sangestani and Khatiban (2013) work which stated that students' progress and score in PBL were better when ALS were used, thus demonstrating that ALS augments students CT and problem solving skills. Moreover, questioning is also an active teaching strategy but it require faculty expertise of how to ask high order questions for promotion of CT thinking. According to Gul et al., (2010) study, nursing educators in majority institutes of Pakistan are having undergraduate degree level qualification, and they were asking low order and vague questions that deters CT .

Although considerable information exists regarding the definitions and the strategies for promoting CT in western countries, limited comparable information exists within the South Asian contexts in similar fields. No published research was found on how CT is perceived and practiced by educators in higher education. Thus this study aimed to identify how CT was perceived and practiced among educators from the three practice disciplines of nursing, medicine, and education in higher education in Karachi, Pakistan. In order to develop a more holistic insight into the phenomenon of CT, it is vital to concurrently explore the perceptions and practices of CT among educators from a variety of disciplines. The study aimed to explore what CT practices the faculty performs in their classrooms to promote learners' CT. The focus of this paper is to report study findings related to the teaching practices among educators of nursing, medicine, and education in university settings that promote CT.

2. Methodology

Using a qualitative approach with a descriptive exploratory design, the study aimed to explore the practices of CT among faculty in the nursing, medicine, and education disciplines. The study population was Pakistani educators from three practice disciplines: namely, nursing, medicine, and education. Faculty from variety of settings such as private and public universities in Karachi was included. For each discipline, a private and a public university were chosen to create a heterogeneous sample. Using a maximum variation strategy, a purposive sampling technique was used to select individuals with diverse views, multiple perspectives, and different characteristics and backgrounds to provide different viewpoints about the phenomenon under study (Patton, 1990). Such a criterion increases the likelihood of reflecting differences and strengthens the rigor of the study (Polit & Beck, 2008). Therefore, a study sample of 12 participants, four from each of the disciplines of nursing, medicine, and education, were selected from

four universities. In cases where participants were not accessible or known to the researcher, a modified snowball sampling technique was used. The students, head of the institution and initial participants were asked to make referrals to other potential participants based on the inclusion criteria (Creswell, 2008).

3. Ethical Considerations and Recruitment of Participants

Permission to conduct the study was obtained from the University Ethics Review Committee. Administrative approval to conduct the study was sought from the head of each university. After gaining access to the site, and obtaining permission from different organizations, and the institutional review boards, participant's recruitment was done from the graduate or undergraduate programs in nursing, medicine, and education. Faculty members considered teaching experts in their field, and who met the recruitment criteria, were invited to participate in the study. Willing participants were asked to sign a letter of consent prior to data collection. The inclusion criteria covered a nursing, medicine or education faculty member, who was a current employee at a university in Karachi, was a senior instructor with 5+ years of current teaching experience, and who was willing to allow the researcher to engage in a classroom observation. A faculty member of foreign nationality with temporary work tenure, or who has been assigned administrative responsibilities and not been teaching regularly for at least one year was excluded. The participants had the right to refuse and withdraw from the study without giving any explanation, at any time. The identity of the participants and their institutions was protected by assigning codes for institutions and pseudonyms for participants.

4. Data Collection and Analysis

Data collection included an observation of participant's one complete classroom session and a post class discussion. The participants' actual classroom practices were observed and notes were recorded in order to provide a holistic understanding of their CT teaching practices. Demographic information about the participants' age, years of teaching experience, educational preparation, and specific training related to CT were collected. Participant's perceptions of what practices entail CT in classrooms were explored in the indepth interview. Moreover, queries arising from the class observations were also answered in post classroom observation interview that clarified the participants' views of CT practices used in the class. A complete classroom session of approximately 60 – 120 minutes was observed and recorded using a digital recorder. The observation of a complete class followed the event sampling principle whereby an entire event is observed in order to give the participant an opportunity to perform all the expected behaviors. The date and time for the observation session was selected by each participant, however, time sampling was ensured, such that some morning and some afternoon classroom sessions were observed. Observer as participant is a type of participant observation, in which the researcher predominantly observes rather than participates, with some engagement with the participant to "fit" in the setting (Speziale & Carpenter, 2003).

A classroom observation guide, developed by the researcher, was used to note faculty classroom teaching practices and behaviors. The observation guide had three components (physical, psychological and intellectual), in addition to the general information about the class. The physical environment of the class included seating arrangements, room temperature, presence of noise and availability of teaching resources and facilities, such as blackboard and chalk, white board and marker, and multimedia projector etc. In the psychological environment, student to teacher and student to student interaction as well as students' freedom of expression were noted. In the intellectual environment, teachers' pedagogy including instructional skills, ability to clarify the concept and learners' participation and engagement were recorded.

In addition to the classroom observations, the documents used in the class, such as class objectives, and lecture notes or power point presentations were collected and reviewed as a data source to supplement classroom observations. In qualitative research, documents represent a valuable source of text data that have the advantage of being in the participants' language as well as being ready for analysis without transcription (Creswell, 2008). Descriptive field notes capturing the participants' non-verbal communication, body language, mood, attitude, pedagogical delivery style, teaching content and environmental context were noted during classroom observations. Reflections and field notes proved useful in supplementing the observation data. Researcher observations and classroom recordings were transcribed and manually analyzed for identification of emerging theme, and sub themes from the content analysis.

5. Findings

This section presents the characteristics of the participants and the findings from classroom observations and the theme and sub themes that describe the practices of CT among faculty based on their classroom observations. The classes observed focused on different subjects and courses in these programs. Some were discipline specific, such as fundamentals of nursing, while some were general such as of science and humanities (Pharmacology, Pathology, and

Biostatistics), or education related (Teaching and Learning, and Philosophy of Education). The total class duration ranged between 45 minutes to 4 hours; the majority of the classes being 1.5 - 2 hours. Of the 12 classes observed, 8 were held in the morning and 4 were held in the afternoon. Six teachers provided a short break in the middle of their entire class duration while the rest proceeded without a break. Both small tutorial classes and large class formats were observed. The number of students in the classes ranged between 8 and 125.

5.1 Characteristics of the Participants

The study sample comprised of 12 participants, including seven males and five females from the medicine, nursing, and education disciplines. Their ages ranged between 30 and 52 years, with a median of 39 years. Seven participants had either a doctorate degree or were pursuing one, whereas the others had a master's degree in their field. The participants belonged to four universities in Karachi, Pakistan; one being in the private sector and three in the public sector. With regard to their academic titles, half of the participants were at the lecturers or senior instructors rank while the others were at a professorial rank. Their teaching experience ranged from 5.5 years to 23 years with a median of 9 years. Six teachers had the experience of teaching students from other disciplines, as well as teaching students in their own discipline.

5.2 Findings of the Classroom Observations

Analysis of data from the class observations and field notes revealed that most participants tried to create an enabling environment for student engagement in order to promote CT. Several study participants mentioned the importance of an enabling learning environment during their interaction with the researcher post observation. Thus, enabling environment emerged as a theme, with physical, psychological, and intellectual environment as its sub themes. Each category is described below in detail with examples and relevant excerpts from study participants. The term NT, MT and ET are written alongside a code number to indicate whether the participant is from nursing, medicine, or education.

5.2.1 Physical Environment

The first category included observations related to the classroom's physical environment that included class layout and seating arrangement; adequacy of light, and ventilation; availability of teaching accessories; and level of noise and distraction. The intent of assessing the classroom's physical environment was to identify physical factors that may affect learners' ability to think and learn, in general, and reduce the learners' concentration or interactions which in turn, may affect their CT. With regards to the classroom layout, three types of seating arrangements were observed (see figure 1).

Traditional style in which all students face the teacher (n=6); C- shaped style in which students sit in a semi-circle arrangement to allow eye contact with teacher and other students (n=2); and a cooperative style in which students sit around a table facing each other to discuss and do group work (n=4). The room temperature appeared comfortable, though 50% of the classrooms were air conditioned and 50% had ceiling or table fans with open or closed windows. The lights were adequate in all classrooms; however, in one classroom, the teacher switched off the lights completely while running the power point presentation and the room became completely dark. In another class, excessive light glare kept coming from a top window that constantly shone upon the screen and limited the students' readability of the PowerPoint presentation. Some students, in this class, repositioned themselves, shuffled their seats or kept looking into their colleagues' notebooks to copy notes and, thus, appeared distracted throughout the session.
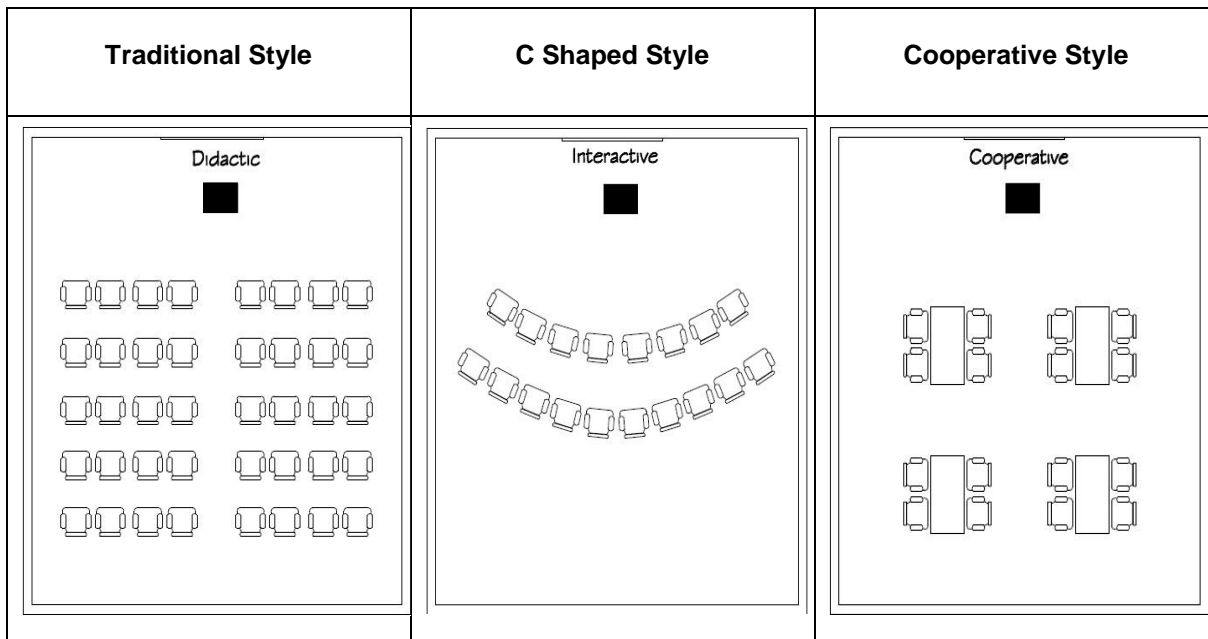
Figure 1. Seating arrangements of classes

Most classes had comfortable chairs or wooden benches; however, in two classrooms the chairs had no arm rests and the students were taking notes with their notebooks on their laps, which appeared uncomfortable. In some classrooms, there were joined chairs (4-5 seats standing on two legs) which made individual chairs immoveable and, thus, seats could not be moved or rearranged for small group activities where learners sit facing each other. Most classrooms had adequate space, either at the back or at the front of the room, so students could either move chairs to face each other or sit on the floor to do any small group work. Two classrooms were very congested. One was small and included 30 students and the other was large and accommodated 125 students. In both rooms there was no free space available for the movement of students and chairs and they seemed to be fully packed rooms with students sitting shoulder to shoulder. This seemed to restrict the movement of the teacher and students and, as such, their ability to interact with each other.

With regard to the availability of teaching aids, most classrooms had either a fixed black board or a moveable white board. However, in some classrooms, chalk and board markers were not visible nearby. Some teachers even commented during the class that they needed a white board, a duster, or a white board marker and when they could not find these items they either looked for some alternatives or suppressed the idea of using these teaching tools. In two big classrooms, the teachers used the available well-functioning microphone and multimedia system and stood at the podium to conduct an audible session in a large class format. Whereas, in two other classroom sessions, the teacher had no table or podium, overhead projector, multimedia, white board, nor a chalk to use on a blackboard, which was the only resource in addition to the wooden chairs in the classroom. Most study participants used some teaching aids to conduct their class; white board (n=2), overhead projector (n=1), white board and multimedia projector (n=5), multimedia and an overhead projector (n=2). However, 2 of the study participants did not use any teaching aids even though a blackboard was available in the classroom, perhaps because there was no chalk in sight.

With regard to the distracters in the class, all 12 sessions observed had some sort of noise that tended to interrupt students' concentration, thinking capacity, and ability to engage in CT. The common noises or distracters in the classrooms were disturbances due to other people entering the class and talking to the teacher, or students entering or leaving the class in between sessions. Moreover, mechanical noises from the ceiling fans, tube lights, and air conditioners were noted in some classrooms. People's laughter and conversation from the corridors and noise of the traffic horns, and sirens from cars and ambulances outside the campus were other sounds that seemed to affect students' concentration with regards to what was happening in the classroom.

5.2.2 Psychological Environment

The second category shares data related to psychological elements in the classroom that may create an enabling and trusting environment. Student - teacher interactions were respectful, nonjudgmental, and allowed students freedom of expression. In most sessions, teachers appeared respectful towards students; however, in some sessions, a few

comments seemed belittling to students such as "You guys have a lot of time (hours) to sit in the canteen but you don't have time to do pre reading" (01-MT). "This is such an easy topic, come on, answer quickly" (02-ET), "Why didn't you learn fully when I taught this in the last class?" (04-NT).

Almost all the teachers valued and sought student' input in class and appreciated them by using certain motivating phrases such as shabash [very good]; however, some teachers gave students more opportunities to express their points of view, give examples, and express agreement or disagreement, and gave them freedom to interact with peers for dialogue and discussion. A nursing teacher, realizing that the students were very quiet and listening passively, questioned, "What is wrong today? You people are very quiet, come on ask me questions" (03-NT). Similarly, another nursing teacher paused and provided time when she noted that one student was talking to another student in a soft voice, she remarked to the entire class, "let him explain to [name of student] then we will proceed" (05-NT). Likewise, a medical teacher who saw two students discussing something became silent and kept his gaze towards them and after a minute, asked, "Are you clear now? If not, then ask me your query, I will explain" (02-MT). Teachers who allowed students to interact with each other by giving them the opportunity to finish their discussion before proceeding, demonstrated respect to students and valued collaborative learning which became evident in the post class discussion with the faculty.

It was noted that 50% of the teachers (n=6) seemed to value discipline, order, and obedience in class and made some gestures and comments when the students did not pay attention to them or their lecture, while the rest of them were not disconcerted by students' temporary inattention. Some teachers openly attempted to ensure discipline by reinforcing the norms of taking turns to speak, listening attentively and maintaining silence. A medical and a nursing teacher showed irritation and signaled to the students to avoid talking by clapping or banging the table and saying, "Shhhh… please listen quietly" (01-MT) and "please don't talk amongst yourself" (03-NT), when students were talking to each other. An education teacher instructed students to "raise [their] hand, stand up and answer" (12-ET). Another teacher commented, "You must listen first, and then agree or disagree with them, but please learn to listen attentively first" (11-ET). Similarly, another teacher, while trying to control a dominant student and ensuring balanced participation from quiet students, stated, "I know you want to say something, but let me hear from those people first who have not said anything since morning" (07-ET).

With regard to maintaining discipline, it was observed that two teachers were quite tolerant of students whispering or discussing something amongst themselves and were not disconcerted when students arrived late to class (even after 15- 20 minutes). Both of these teachers mentioned in their post observations interviews that being strict with students regarding their tardiness, or why they had not brought any writing pad or book to take notes, tends to accentuate their behavior of carelessness by giving them attention. Teachers who asked students questions by calling out their names seemed to create a tense environment as students tried to prove themselves and appeared threatened and anxious. Whereas teachers who asked questions without calling out students' names were found to be less threatening; those teachers also accepted students' mistakes or wrong answers and corrected them in a reassuring manner. In addition, a nursing teacher also appreciated a student who pointed out the teacher's error on the presentation slide, and said that the student has a critical eye and thereby maintained a non-threatening environment. A few teachers even narrated jokes, poetic verses and humorous comments to make students laugh and to lighten the serious environment, instilling in students renewed energy to think afresh. Likewise, in three classes, the teacher allowed students to eat chewable snacks in the class (mint sweets, chips, chickpeas) even after the break when the class discussion resumed.

5.2.3 Intellectual Environment

This category includes data related to various stimuli affecting the intellectual environment of the classroom. The nature of teacher interaction and student engagement in terms of it being a didactic, interactive or collaborative class, the use of teaching pedagogies, and the conceptual quality of the session were noted. As shown in table 1, three of the 12 sessions observed were conducted in a didactic or teacher centered manner, where students' input was invited in a controlled manner. Five teachers conducted their sessions in an interactive style. The teacher was student – centered, flexible and gave more freedom to students to share, discuss, dialogue, and ask questions of the teacher. Four teachers conducted their sessions in a collaborative manner, where students participated more and were engaged in group work, where cooperative learning strategies were used. It became evident that the type of session conducted by the teacher impacted the degree of student - teacher interaction and the level of student engagement and participation. For example, in didactic sessions, the level of students' participation and the number of questions asked by the students were minimal in contrast to an interactive session. Similarly, the level of students' engagement was high in collaborative sessions unlike in a didactic or interactive session. Although a larger class size of 125 students was conducted in a didactic manner, as shown in Table 1, the smaller sized class was not necessarily

conducted in an interactive or collaborative manner. This implies that the class size or number of students does not influence teachers' choice of conducting an interactive or collaborative class.

Table 1. Type of Teacher - Student Interaction and the number of students in class

Didactic Style		Interactive Style		Collaborative Style	
Faculty Code	Student number (n)	Faculty Code	Student number (n)	Faculty Code	Student number (n)
04-NT	14	05-NT	16	03-NT	29
01-MT	125	10-MT	10	08-NT	09
09-MT	15	07-ET	08	02-MT	15
		11-ET	14	06-ET	08
		12-ET	27		

In terms of relevance, depth, and breadth of topic covered in class, the researcher asked teachers to share a copy of the documents used in the class or given to the students. These documents were unit objectives, multimedia presentations, notes, and activity sheets used in the class. Of the 12 teachers, seven shared the class objectives with the students at the beginning of their presentations verbally (n= 4) or via a slide (n=3), whereas five teachers did not mention the objectives of the session. Most of the objectives were at the remembering and understanding level (C1 & C2), while some of the objectives were at the applying and analysing level (C3 & C4), but few were at the evaluating and creating level (C5 & C6). Table 2 lists examples of objectives for each level using Bloom's taxonomy (2001).

Table 2. Examples of objectives and their cognitive level (Bloom's Taxonomy, 2001)

Level of Objectives	Examples of unit / session objectives
C1- Remembering	Describe the mechanism that regulates urine osmolarity.
C2-Understanding	Discuss theories of adult learning that are of relevance to the profession.
C3- Applying	Facilitate participants in learning content and pedagogic knowledge and skills related to theme of cultural diversity.
C4 - Analysing	Analyze the given scenario and identify nursing hypothesis for the client.
C5 –Evaluating	Engage in systematic reflection to improve understanding of [subject] teaching and learning and themselves as practitioners
C6 –Creating	Develop and use some audio visual aids.

Most teachers used notes, books, handouts, or power point presentations in the class, while others conducted the class without referring to any notes. Some teachers started the class after a brief review of the information from the previous session and linked it to the current class. A majority of the teachers shared the names of books and article references with students for further independent reading. In terms of the conceptual clarity of the topic covered, teachers' ability to build up ideas from simple to complex and the quality of the classroom discourse was observed from the researcher's point of view; of which five were found to be excellent, four were viewed as good and three were considered fair.

In terms of teaching pedagogies, most teachers used a variety of active, reflective, and cooperative teaching strategies in their classes. They used interactive lectures, drawing diagrams, showing pictures, slides and images, discussion, group work, tutorial sessions, reflection exercises, problem solving activities, scenarios or cases, debate, student presentations, book reviews, critique on conceptual framework, article reviews, and engaged students in role play and stage theatre. The participants' teaching and facilitation skills, such as ability to explain, relate examples, inquire, paraphrase, and probes were also noted. A majority of the teachers had satisfactory facilitation, inquiring, and probing skills, with a few demonstrating minimal evidence, especially those who conducted didactic lectures only. In addition to the facilitation skills, participants' questioning skills were also observed. A majority of the teachers lacked effective questioning skills. Most of the time teachers asked low level convergent questions that required students to recall information and test their comprehension. Only a few teachers asked high level divergent questions that required learners to evaluate and create information (Sellappah, Hussey, Blackmore, & McMurray, 1998). Examples of questions are illustrated in Table 3.

Table 3. Examples of questions asked with level of cognition as per Blooms Taxonomy, 2001

C	Cognitive Level	Examples of questions asked by Study participants		
		Nursing Faculty	Medicine Faculty	Education Faculty
C1 C2	Remembering & Understanding	What is spirituality and spiritual distress?	Define Diabetes Insipidus?	Explain sandwich technique for feedback
C3 C4	Applying & Analysing	Debate if Nursing is an art or a science?	How does Warfarin act on blood?	Differentiate between assessment & evaluation?
C5 C6	Evaluating & Creating	Summarize the main findings of this article	What did you learn in this class?	Share your philosophy of education?

In addition, most teachers allowed less than 1- 2 seconds to students to respond to their questions or did not pause after asking a question. In many instances, the teachers showed impatience, a hurried demeanor, and resorted to answering the questions themselves when the students took more than 2 – 3 seconds to think about the answers. Moreover, it was evident that teachers who conducted classes in a didactic manner provided minimal opportunities for students to ask questions during the class. However, those teachers who allowed freedom, opportunity, and flexibility to students to ask questions any time during the sessions motivated the students to ask critical questions, compared to those who restricted students and made them wait and ask questions at the end of the session.

6. Discussion

The participants attempted to maneuver the layout of the class, moved the furniture around to determine preferred seating arrangement based on their choice of teaching strategy and availability of teaching accessories. Although Duron, Limbach, & Waugh, (2006) reported that class size and time constraints affect the use of CT techniques and student engagement, the same was not true in the current study. Teachers in some larger classes used CT strategies while teachers in smaller classes did not. The participants of the current study demonstrated that the class layout and seating arrangement influenced their choice of CT strategies; faculty who used the traditional configuration of seating tended to use more didactic strategies. Moreover, congested classrooms with limited free space, and fixed furniture also affected the faculty's ability to manipulate the class layout and, thus, the use of CT strategies. Loftin, Davis, and Hartin (2010) explain how a theatre - like classroom influences students' participation. Students facing the teacher can only see the back of their peers' heads and are unable to see their positive expression and reaction, which may affect their motivation to participate. Thus, reconfiguring the classroom seating is necessary to enhance student participation and engagement, which is likely to enhance CT. Evidence on availability and use of teaching accessories (Fesler-Birch, 2005; Myrick & Yonge, 2001) indicates that learning resources play a pivotal role in enhancing active learning, which is necessary for CT. On the contrary, in some of the classes, although teaching resources were available, they were not used by the teachers, whereas, in other classes, the teachers were able to engage students in active discussion to promote their CT without the use of any resources.

It was heartening to observe that in most classes, with some exceptions, teachers demonstrated a respectful, encouraging, positive, and non-threatening environment, which is considered to promote students' CT (Billings & Halstead, 2009; Kocoska, 2009; Loftin, Davis, & Hartin, 2010; Myrick & Yonge, 2001; Wang, Woo, & Zhoa, 2009). Although less highlighted in the literature, findings based on the classroom observations indicated that the degree of formality in the classroom impacted student - teacher interaction. For example, students and faculty sharing snacks and using humor, created a less formal and more comforting environment, thereby encouraging students to participate freely. These classes presented a classic picture of a relaxed, caring, comfortable, non-threatening, environment, which is necessary for reflective thinking and discussions promoting CT.

Conversely, students were quiet and less engaged in the classes where teachers were very particular about ensuring silence and discipline in the classroom. In contemporary education scenario in the Pakistani context, emphasis is on reviewing the notion of discipline (Siddiqui, 2007) as to most teachers it means complete silence and obedience by the students, without challenging or questioning the teacher. However, interactive learning climate necessitates that

students must be encouraged to ask questions and be allowed to differ with arguments put forth by the teacher to promote CT.

Variations were observed in the classroom's intellectual environment. Compared to interactive and collaborative learning, only a few teachers used a didactic teaching approach, which does not reflect the prevailing assumption that didactic lectures are commonly used in higher education in Pakistan (Davies & Iqbal, 1997; Siddiqui, 2007). However, this difference could be attributed to the type, nature, and size of sample in the current study. For promoting students' higher level of thinking, Duron, Limbach, & Waugh, (2006), suggest use of higher level objectives incorporating analysing, evaluating & creating. Interestingly, faculty used many lower level objectives (remembering, understanding & applying) but used multiple active, reflective, and cooperative strategies which are known to promote CT (Banning 2006; Loving & Wilson 2000; Simpson & Courtney 2002). Despite the use of lower level objectives, the students were actively engaged in their learning. However, this also implies teachers' lack understanding of curriculum alignment, which should demonstrate congruence between course objectives, teaching learning strategies, and the expected outcomes.

Regarding facilitation and questioning skills of teachers, it became evident during classroom observations that most teachers engaged in explaining and clarifying the content; however, they did not have command over probing, scaffolding, or posing higher level questions. This finding is in line with several studies (Craig & Page, 1981; Gul, Cassum, Ahmad, Khan, Saeed, & Parpio, 2010; Profetto-McGrath et al., 2004; Sellappah et al., 1998) which suggests that teachers use ineffective questioning techniques, asks more low level questions that do not promote CT compared to high level questions, and do not give wait time to students to respond to questions. This finding implies that teachers must be trained in asking higher level questions to promote students' CT. Although there were variations in the teachers' pedagogical, facilitation, and questioning skills, the differences were teacher specific rather than discipline specific.

7. Conclusion

The current study identified multidisciplinary faculty' practices of CT from classroom observations and found that most faculty participants focused on creating an enabling physical, psychological, and intellectual classroom environment. The faculty verbalized that promoting students to dialogue with peers and faculty, and ask questions in class enhances student engagement and promotes CT. The study recommends that since CT can be enhanced by creating an enabling environment in a university, it should be the combined responsibility of faculty, staff, administrators, and the policy makers to be aware of what makes a class environment and classroom ideal, such as, presence of free space, moveable furniture, and sound proof walls to limit noise transmission. Similarly, having fixed wall resources, such as black and white board, ceiling projectors, storage cabinet for duster, chalk, board markers, and flip charts can ensure that these resources are available for teachers whenever needed. Teachers' ability to create an enabling physical, psychological, and intellectual environment in classrooms to promote learners' CT is contingent upon their understanding of CT. Teachers who verbalized a better understanding of CT and its strategies, demonstrated ability to create an enabling environment for promoting CT skills in the classroom.

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