Tutor's Role in Problem-based learning: Minimum Interference with Maximum Responsibility

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Abstract

With the inception of Problem Based Learning, there has been a paradigm shift of tutor from a knowledge transformer in a traditional teaching environment to a facilitator in a small group student centred learning environment. The tutor has to adapt the changing role to facilitate the tutorial group for self-directed learning. Students' learning would depend on the facilitator's understanding and appreciating of his/her responsibilities in the small group sessions. However, tutor's legitimate role in PBL can be undermined by wrongly viewing “student centred” as “tutor inactive.” Tutor's interference in the PBL process may be very less, but he/she plays a significant role in facilitating the students' learning. The present paper aims to identify how, when and to what extent a tutor should intervene in the PBL process and also analyse the role and responsibilities of the tutor for the effective functioning of PBL based on the published literature. The author has explained the role of tutor in facilitating self-directed learning and collaborative learning; promoting critical thinking; providing feedback for the students. This paper also highlighted the significance of training programme to develop tutors' knowledge, skills and attitude to undertake his/her changing role as a facilitator of a group.

Key words: Problem based learning, facilitator, training programme

Introduction

During the last few decades, there has been a surge in the use of Problem-based learning (PBL) in the health professions education. Since the adoption of PBL in McMaster University in 1969 (Neufield et al. 1989), its acceptance and popularity has been increased multi-fold in the field of medical education across the globe. PBL is a learner centred approach that revolves around an ill-structured problem or scenario where a small group of students take part in the learning process actively and independently applying their prior knowledge and experiences to develop new knowledge and skills. In PBL, students identify the issues, frame hypotheses, formulate objectives, do research, and take part in the discussion to resolve the problem as a team. The focus in PBL is learning of the students rather than the teaching of the teachers (Barrett, 2005).
What should be the role of the Tutor?

Implementing PBL successfully depends on faculty being skilled in all aspects of the PBL learning process (Farmer, 2004). Tutor's role as facilitator is of pivotal importance, as student learning would depend on the facilitator's understanding and appreciating of his/her responsibilities in the small group sessions (Dolmans, et al., 1994). Schmidt (1999) in a study found that 'tutor performance' was positively associated with the 'quality of the learning problem' and directly influenced 'group functioning'. However, tutor's legitimate role in PBL can be undermined by wrongly viewing "student centred" as "tutor inactive." (Maudsley, 1999). Tutor's interference in the PBL process may be very less, but he/she plays a significant role in facilitating the students for self-directed learning. Tutor's main role in PBL is to facilitate the proceedings and to ensure that the group achieves appropriate learning objectives in line with those set by the curriculum developers (Wood, 2003). Thus, Glick (1991), says “…a good tutor maximizes tutorial opportunities by being active in a variety of ways: in planning and preparing, in listening, in encouraging critical thinking, in enriching, in offering spoken and unspoken feedback…”

Self-directed learning and the tutor

Tutor, in PBL, should not transmit his expert knowledge to the student, but should probe students' knowledge by encouraging them to contribute to keep the learning process running properly (Diana et al., 2005). Tutor has to make sure that students are engaged both in the process and content of PBL. In terms of process, students should be encouraged to select/volunteer leader and scribe for each problem (Savin-Baden and Major, 2004). Students should move forward step by step in the process participating actively, working collaboratively as team with least interference of tutor. Even after the brainstorming session, they should undertake their research work independently by themselves. They should be encouraged to have interjection within the group, even, in-between the brainstorming and discussion session either by face to face or via social media. Tutor should make sure that discussion session is quite engaging. In terms of content, tutor's role is to motivate the students for identifying learning issues, formulating hypotheses, framing objectives and collecting information. Instead of assisting students by giving mini-lectures, tutor should ask questions like 'how'; 'why'; 'what cause'; 'what do you think'; etc. so that they can think critically using their prior knowledge. While framing hypotheses, contribution of each student with different ideas and views should be appreciated.

Promoting Critical Thinking of students

Critical thinking is a higher order thinking level that helps in solving the problems with deeper understanding. In a contemporary health care environment, the medical students must possess the critical thinking and problem solving skills. PBL offers the opportunity for students to enhance their critical thinking and self-directed learning skills, and engages students in solving problems (Smith, 1995; Williams, 1999). Cook and Moyle (2002) examined students' evaluation of the use of PBL, where students indicated that the PBL approach promoted critical thinking and
problem solving and active participation in the learning process.

Tutor has to understand the responsibility to provide a comfortable learning environment for the development of higher order thinking skills of the students. Instead of giving mini lectures, tutors should have faith on the ability of the group. Barrows (1992) asserted that the two major responsibilities of tutors in PBL are facilitating the students' development of thinking or reasoning skills that promote problem solving, meta-cognition, and critical thinking, as well as helping them to become independent and self-directed learners. A good tutor must know when and how to provide support the PBL group. Rather than providing answers directly, tutor needs to challenge the learners' by asking stimulating questions. Tutor facilitates the group by "questioning, probing, encouraging critical reflection, suggesting and challenging in helpful ways—but only where necessary" (Margetson, 1994). He should assist the students to acquire the reasoning or problem solving process by encouraging them to hypothesize, justify, experiment, and question their reasoning process (Mayo and Donnelly, 1995).

Collaborative learning and the tutor

One of the important aims of PBL is to promote the students to learn collaboratively as a team. Collaboration is not a matter of division of tasks among learners, but involves mutual interaction and a shared understanding of a problem (Dillenbourg et al., 1996). This encompasses establishing common ground, resolving discrepancies, negotiating the actions that a group is going to take, and coming to an agreement (Barron, 2002). In collaborative learning environment students learn from interacting with each other, e.g. by explaining the materials to another student and by asking and answering questions and by discussion. The tutorial group work in PBL makes learning in PBL a collaborative process which aims at stimulating students towards interactions that are intended to have a positive effect on learning Diana et al., 2005). Tutor's role is important here because he/she needs to encourage students to involve in different learning activities, not in isolation, but as a team. Tutor makes sure that every student has to play his/her role properly as a leader, as a scribe or as members to achieve common goal of learning. While discussing on certain issues there may be some disagreements among the students. Tutor should appreciate such divergence of ideas and ask leader to deal with the situation with positive attitude and try to bring consensus at the end. In order to improve tutorial group functioning and stimulate students towards collaborative learning, tutors should evaluate the functioning of their group on a regular basis. (Diana et al., 2005).

Encouraging students' Participation

In PBL group there may be some students who speak too much whereas some other students either speak less or don't speak. Tutor should determine the exact level of participation of students in the PBL process. If the number of student in a group is too small, i.e. 5 to 6, tutor can easily observe each students contribution. But, it seems to be difficult when the group size is little larger. In such case it is better for the tutor to use a Students' Participation Table (SPT) as shown on the table 1. With the help of this table, tutor can easily differentiate between active and less active students. Tutor should
come to the PBL class with this table and record the number of time each student express his/her ideas, opinions or any meaningful information in brain storming and discussion session. For instance, in table 1, the contribution of student ZXY in Problem 1 is highest in both brain storming and discussion session, whereas students XYZ, YYY and YZX either spoken very less or did not speak at all.

Table 1: Students’ Involvement Table (SIT)

<table>
<thead>
<tr>
<th>Name of the Student</th>
<th>Problem 1</th>
<th>Problem 2</th>
<th>Problem 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Brainstorming Session</td>
<td>Discussion Session</td>
<td>Brainstorming Session</td>
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<tr>
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<tr>
<td>XYZ</td>
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<td>YYY</td>
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<td>ZZZ</td>
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<td>YXZ</td>
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<td>ZXY</td>
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</tr>
<tr>
<td>YZX</td>
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</tr>
</tbody>
</table>

and manage time effectively (Lee et al. 2013) and ask stimulating questions to less participatory students so that they can speak and involve actively in the interactive process.

Providing Feedback

Feedback, as part of formative assessment, is the information given to students about the attainment of learning goals related to the task or performance (Hattie and Timperley, 2007) and thus, it is an essential component of learning process. Through feedback, individuals recognize areas of deficiency in their knowledge or skills and seek to remedy these (Parikh et al, 2001). Timely supply of feedback to the students motivates students to involve actively in the learning process.

Students experiencing with learner centred PBL approach should know their progress in the acquisition of the knowledge and skills while dealing with the problems. Tutors continuous feedback helps to improve the performance of students in future PBL (Elizondo-Montemayor, 2004). Parikh et al, 2001, offered at least two recommendations regarding students' feedback in PBL. First, that students prefer immediate feedback in the PBL setting, and second, that students show a clear preference for individual, peer and group feedback. Tutor's feedback boosts students’ learning abilities, but, they feel quite animated while feedback is given by peers. As a tutor, one should always support peer feedback. When a leader, a scribe or members apprehend from their own peer group that where they were, where they are at present and where they need to go, they feel quite happy as a team.
Dealing with students’ first PBL session

The transition of students from secondary school to medical school proved to be challenging at various ground including the learning environment. Students may face difficulty in shifting from traditional learning method to self-directed PBL approach. Though, before entering into the PBL class students get orientation about the process of PBL, still they may find it initially unsettling. This is because they are being asked to take responsibility for their own learning, to work on ill-structured problems where there isn't a pre-established "right answer," and where they are expected to solve problems as self directed learners. In this regard Barbara et al., (2001) state “Imagine a classroom full of students who have spent their entire education in lectures and are seated nicely in rows facing the front of the room. This course will be unfamiliar to them or, if not unfamiliar, something they might have found unpleasant. Will they buy into PBL?”

The first PBL session is crucial for the tutors to scaffold students by creating a comfortable environment conducive to learning. After verifying the classroom settings, a brief description about PBL approach should be given by the tutor to make sure that students are well aware of the approach. He/she should also encourage students to develop classroom norms and ground rules for group work, including time management; role of leader, scribe and members; proper use of references while collecting information; establishing attendance policies and the consequences for rule violation (Stanford University, 2001). Tutor needs to tell the students to select or volunteer a leader and scribe for each problem and should make sure that each student should get the opportunity to perform either or both of the roles in each block/course/semester. During brainstorming session, students may get confused at some point time and give pause on their work. Tutor’s job is to boost confidence among the students and appreciate the students even if he/she gives wrong ideas. Tutor should encourage students to transfer these mistakes into learning opportunities.

How and when to Intervene in PBL?

A tutor has to be aware of the appropriate time and situation to intervene in the PBL process for successful tutoring (Haith-Cooper, 2003). The best tutor knows when and how to intervene and has the students’ learning as his top priority (Maudsley, 2002). The important point is not how much the tutor talks (within reason), but that the tutor makes a considered decision when to interject, and when to hold back (Wetzel, 1996).

There is no specific rule for tutor's intervention in PBL. Tutor’s verbal or non-verbal expression should have positive impact on students’ learning. Many situations come where tutor’s intervention could be more effective. While tutoring the group a tutor witnesses different situations such as: secret conversation among two or more students; group remains silent for long time; few students do not speak at all; improper management of time; leader becomes passive; etc. In such situations tutor’s intervention is necessary to strive the students for collaborative, self-directed learning. He/she should never interrupt productive discussion (Wetzel, 1996). Sometime
students want facilitators to explain unclear facts and to correct them when facts are wrong (Yee et al., 2006). Instead of giving direct information, tutor should guide the learning process of the group by asking thought provoking questions.

**Expert vs. Non-expert Tutors**

Since the inception of PBL, there has been a considerable debate about the tutors' expert knowledge of the subject. Some authors have argued in favour of subject-expert tutors by saying that they would facilitate the tutorial process more effectively and more efficiently than non-experts, because such tutors were more comfortable tutoring in areas of their expertise (Schmidt et al., 1993). According to Schmidt and co-workers, students guided by tutors with subject-matter expertise spent significantly more time on self-directed learning as compared to those guided by non-subject-matter experts. Further, Schmidt and Moust (1995) in their study stated that the most effective tutors, as judged by the students, were those with both content knowledge and the ability to empathise with their students' circumstances. Similarly, Eagle et al. (1992) demonstrated that students guided by content-expert tutors produced more than twice as many learning issues for self-directed learning and spent almost twice the amount of time on self-study as did students guided by non-expert tutors. On the other hand, some argue that expertise detracts from the tutor’s role of facilitator. For instance, Silver and Wilkerson (1991) suggested that tutors with subject matter expertise were more inclined to play a directive role in the tutoring process, spoke more often for a longer periods, supplied more direct answers to questions posed by students, and suggested more points for discussion. Davis et al. (1992) could not identify behavioural differences in tutors with subject-matter expertise and those with lesser subject-matter knowledge. However, knowledge of subject matter will not influence in tutoring, provided tutor is aware of the real purpose of the PBL approach. A tutor having proper knowledge of concept and purpose of PBL process with basic knowledge of the content can be more instrumental in tutoring.

**Training Programme for the Tutors**

**Faculty development for problem-based learning**

Training programme for the faculty is essential to understand the changing role of teacher from a knowledge transformer to a facilitator. Before entering into the class, every tutor should learn the fundamental principles and practice of PBL with requisite skills to facilitate the PBL delivery process. In transitioning to their new role as facilitator, novice tutors require training which equips them to manage the specific challenges with which they will be faced in the teaching-learning process (Jung and Wilkins, 2005). Institutions practicing PBL organizes faculty development programmes including workshops and seminars on theory and practice of PBL. Such programmes help in improving tutor facilitation skills in the areas of constructive active learning, self-directed learning, collaborative learning and intra-personal behavior as tutor. It also increases tutors' self satisfaction with their performance and enhances students' satisfaction with tutor performance (El-Aziz El Naggar et al. 2013).

Continuous training is a part of professional development (Duta and
Folostina 2014) and that is also applicable for the PBL tutors. Even the experience tutors should get training to update their knowledge on PBL delivery process and to deal with the issues such as group questioning skills, advanced group facilitation skills, helping dysfunctional tutorial groups, and evaluating students' tutorial performance (Wetzel, 1996; Kaufman and Holmes, 1996). Through training workshops, trainee facilitators should develop a clear understanding of what they should and should not do in the tutorial (McLean, 2003). PBL workshops are being organized in different universities and tutor should attend such programmes to expand their knowledge and skills on PBL. Besides, it is also essential for the tutors to attend the meetings at the beginning and end of each theme/course/block to take necessary actions.

Conclusion

An effective PBL tutor needs to realize his role and facilitate the tutorial with more commitment and sincerity. Tutor has to play multiple roles as a facilitator, an observer, a guide and an evaluator to foster lifelong learning skills among the learners. He/she has to understand the appropriate timing and situation to intervene the PBL process and promote constructive discussions among the group. It is not important how much the tutor needs to intervene, but to understand to what extent students get benefit from his/her intervention. Tutor’s conundrum to deal with the PBL class, particularly who is inclined towards traditional teaching learning strategy, is obvious. Such tutor needs to change his/her attitude towards learner centred PBL approach and also attend faculty development programme to understand his/her role and responsibilities based on the principles and process of PBL.

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