

FROM SAGE-ON-THE-STAGE TO GUIDE-BY-THE-SIDE: EFFECTIVE TUTOR SKILLS IN PROBLEM-BASED LEARNING

by

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ABSTRACT

Barrows and Tamblyn (1980) define problem-based learning (PBL) as the learning that results from the process of working toward the understanding or resolution of a problem. As students learn by doing and hone their problem-solving skills in their learning journey, the tutor ensures that the students learn in teams to solve problems. Hence, the tutor plays a pivotal role in the PBL curriculum.

The paper discusses the roles and skills required of a PBL tutor based on the authors' experiences in implementing small group PBL in an authentic PBL curriculum at the Diploma in Marketing, Temasek Polytechnic. It concludes with the critical success factors for an effective PBL tutor in small group authentic PBL tutorial process.

(104 words)

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INTRODUCTION

Barrows and Tamblyn (1980) define problem-based learning (PBL) as the learning that results from the process of working toward the understanding or resolution of a problem. Authentic PBL requires students to go through the same activities during learning that are valued in the real world (Barrows, 2000). The intent is to challenge students with high impact problems that they will encounter in practice. These problems serve as a stimulus for learning and a focus for organizing what has been learned in small group tutorial sessions for later recall and application to future work.

The tutor guides the tutorial group through the learning process, encourages students to attain a deeper level of understanding and ensures that all students are actively involved in the group process (Barrows, 1988). By this definition, it is clear that the tutor has an important influence on the successful functioning of the small group PBL tutorials. The success and failure of a PBL curriculum lies not only with the design of good problems for students to solve, but also with effective tutor.

The tutor serves to observe, manage and intervene student learning to ensure that the authentic PBL education objectives are met. The four broad PBL education objectives are acquisition of knowledge, development of reasoning skills, self-directed learning skills and team skills.

The success or failure of the PBL sessions is dependent directly on the tutor's preparedness and training for the task (Mayo and Donnelly, 1995). This is more so for a tutor in a PBL tutorial environment as opposed to a traditional tutorial environment. This is because in the PBL learning environment, students assume increased responsibility for the learning process. The emphasis is placed on the use of small group learning, and tutors' influences in the learning process. Tutors do more than just provide guidance; they set the stage where learning takes place. They present themselves as models of the reasoning and learning process. The tutorial sessions would then take a model-support-observe-fade approach suggested by Barrows.

This paper presents the authors' reflections on their experiences with small group tutorial process in authentic PBL, sharing on the roles and skills that the tutor must possess to be effective.

THE ROLE OF TUTOR IN PBL

In listing the skills required of a tutor to be effective in authentic PBL, it would be erroneous if the role of tutor were not seen in the correct light of PBL. New skills are required of the teaching faculty so that they are willing and competent to allow students to take an active role in guiding their own learning and in teaching one another (Barrows & Tamblyn, 1980). Unlike the traditional lecture-based teaching, PBL requires the faculty to evolve from being the "Sage-on-the-stage" to "Guide-by-the-side" (Stinson, Milter, 1996). The skills and the commitment of teachers as tutors influence the quality of the students' learning under PBL. Tutors must be skilled to pose questions to learners to elicit deep thinking and enhance their meta-cognitive skills.

In a PBL tutor's role as a 'guide by the side', experience has shown that the PBL tutor must possess two distinct sets of skills. The first set consists of skills that are procedural in nature, that is, how to choose a course of action, how to work through the step-by-step tutorial through the PBL process within a small-group setting. And it is clear from the on-set that if PBL small group format is to be effective, the tutor must surrender the seat of the authority (Mayo and Donnelly, 1995) to the students. This calls for the tutor to be able to involve all students in the discussion, keep discussion focused on the problem, give the students time to think and allow the students time to answer.

The second set of skills centers around the task of fostering the meta-cognitive and reasoning process in students. To prepare students to think critically and to make informed decisions, tutors must model the process of hypothetico-deductive questioning and inquiry well, and to focus within the context of the problem. The tutor assists 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). In order for the tutor to be able to do this, he relies heavily on the use of non-directive-open-ended questions. The PBL tutor here is to provide an environment conducive to learning.

The goal of the tutor is not to feed facts and information, but to nurture reason. Hence, he needs not be a content expert. One important goal of authentic PBL is that of improving reasoning or problem solving skills of students. Hence, the ideal PBL tutor must be an activator rather than a facilitator. According to Mayo and Donnelly (1995), the difference in terms, although subtle is extremely important. To facilitate means to help, to make something easy or easier. As pleasing as the concept of facilitating may be, that is guiding students through discovery; Mayo and Donnelly (1995) insist that it fails to capture the dynamics of PBL. The authors agree with them. The term activator is more active in nature, and in contrast with facilitator, activator causes students to engage in activity – causes active student learning by motivating students and challenging them with non-directive questions at the meta-cognitive level. With time, when the groups are more familiar with the authentic PBL method, the students would have taken to the PBL sessions by themselves. Here, the tutor would provide support. Over time, tutors fade away and become observers at the side, staying attentive and alert to the student group processing and discussion from the side.

In this sense, the tutor activates the learning activity of students. The tutor plays a significant role in the group dynamics, where he is the catalyst. The tutor is neither doctrinaire nor dictatorial. Ultimately, in time, the group of students would have developed the confidence and skills necessary to become good problem solvers. The students would have learned from their tutors the questions to ask, and be independent learners, first as a group then as an individual. This is closely tied to the model-support-observe-fade approach in small group PBL tutorial advocated by Barrows.

It is important to put clearly what constitutes effective activation of student learning in PBL. The faculty is more familiar with directing students in lectures. Hence, they can

have difficulty adapting to the role of PBL tutor, even after training and staff development sessions (Neufeld & Barrows, 1974). The staff may mistakenly develop the belief that tutoring is nothing more than to observe the tutorial process and student dynamics. Thus, they may feel that they have little to contribute and really lost their 'power'. The result is a polarization of faculty attitudes to PBL, whereby there is one type of tutor who feels constrained to act or alternatively, the other type of tutor who are still directive even in the PBL setting. Both types are ineffective, and these two types are suggested as the worst PBL tutor types, labeled as "laid back" and "directive" by Barrows (1988). Neither of these behaviors facilitates or activates tutorial process or learning.

The tutor in small group PBL sessions is one that helps out in the learning, hence the issue if a tutor should be an expert in a particular field or content is not an issue. Barrows clearly emphasized process facilitation skills as crucial for the learning of students, in contrast to tutor's relevant subject knowledge. "A faculty who is a good tutor can be a successful tutor in any area" (Barrows and Tamblyn, 1980).

Mayo and Donnelly (1995) suggested that we imagine the tutor within a small group PBL session to function very much like a symphony conductor. The symphony performance is based on a script or a score. However, the conductor must interpret the musical text to achieve a harmonious whole by balancing and blending the individual parts. The symphony conductor may not know how to play every orchestral instrument.

Like the symphony conductor, the PBL tutor does not need to be an expert in every field. To be credible, however, the tutor should be a generalist or a practitioner in the field. The debate about whether the expert or the non-expert makes a better tutor is not necessary. The faculty must obviously know their subject in depth. However, to be an effective tutor requires one to be more than just a depositor of knowledge (Mayo and Donnelly, 1995).

What is important for tutor is to be competent in asking specific open-ended questions that are useful in guiding students through the reasoning process. This is what Barrows (1988) refers to as ‘modulating the challenge’ of learning. It describes the ability to create the pace, tone and rhythm of the learning process. The effectiveness of the tutor resides in the ability to ask relevant and timely questions. The ideal tutor is one that has the ability to create a learning rhythm that acquires its own momentum. For novice students in PBL, there will be more modeling and support from the tutor. Over time and practice, tutors do more observation by the side and let the students play out the symphony on their own.

TUTOR SKILLS IN PBL

This section provides the experiences of the staff in the Diploma in Marketing when implementing authentic PBL tutorial sessions in the academic year of 2001/2002, for the Year Three students. This list is by no means exhaustive. It consists a list of checklist or guide of a PBL tutor and the necessary changes to be made for an effective PBL tutorial sessions to occur.

1. Listen to students. Do not provide direct answers.

Several authors have noted personal and professional qualities of helpful tutors. Mayo and Donnelly (1995) suggest that the effective or outstanding tutor is one who is able to demonstrate the ability and patience to listen to students. Tutors who provide direct answers or are directive would short circuit the entire learning process and undermine the goals of PBL. Effective tutors must possess the fortitude not to provide answers prematurely or direct own personal views or answers when students are silent or fumble. PBL should promote inquiry by students.

2. Focus on problem and tutorial process.

Skilled tutors support the group in choosing a course of action and activating them through the steps of the small group PBL tutorial process. The tutor keeps the dialog or discussion focussed on the problem or context of problem. Most importantly, tutor acts as a role model by illustrating their ability to apply the principles of PBL and hypothetico-deductive questioning. Barrows (1988) asserts that tutors know they have been successful when the tutorial group can function independently or with minimal guidance. They will intervene when the group does not meet the PBL educational objectives.

3. Ask specific open-ended questions.

In PBL, the tutor is needed to stimulate, engage students in active inquiry and critical thinking. This can be done by the use of thought-provoking open-ended questions such as the following in the appropriate tutorial sessions:

- What are the other possibilities that you may have not thought of?
- What is the facts or evidence to support that idea?
- What are your thought to that ideas proposed?
- What do you mean by?
- Would you explain that a bit more, I am not sure if I am clear what you want to explore?
- This seems a bit broad to me, would you like to explain that?
- Let's stop and review what we have now about the issue.
- Would one of you like to review what we have so far?
- Would one of you like to summarize without referring to the board?
- What was the date of publication of that book?
- How do you know that the information is reliable?
- How will this information help us to manage the problem?
- How does this information support or not support our original idea?
- What have we learned from this problem?

- In what way has working through this problem help with understanding (example how branding helps in positioning of the product)?

4. Attentive to group process.

Concurrently with assisting students to develop their reasoning skills, self-directed learning, and information management, a good tutor must also be attending to the group process issues that arise and helping students to become collaborative learners.

The typical group issues faced by a small group that a tutor must be attentive are the following:

- Decision making/ achieving consensus.
Groups need to develop procedures that regulate the process of decision-making and the role performances of group members (Sampson and Marthas, 1990 in Rideout, 2001). This suggests that at the beginning groups require assistance in exploring the options for decision-making. Experienced groups may have an increased capacity to outline practices, but members continue to need some tutor assistance in developing negotiation and decision making skills.
- Managing differences, tensions and conflict within a group.
Tutor has an important role to conscientiously promote a safe climate that supports uncertainty and ambiguity.

As tutors for novice student group, tutors need to discuss the different group roles and how each contributes or hinders the achievement of learning. The tutor should also model for students to learn. One strategy to increase students' awareness of behaviors exhibited when performing the different roles is to use a strategy called time out. This was first developed as a way in

which to enter and exit from an interaction in which one group member interviews a standardized patient (Barrows and Tamblyn, 1980). Time out enables the tutor and other group members to halt a discussion, thereby capturing a particular bad group behavior or moment. This enable the students to learn and have a clear understanding of how their behaviors and those of the group influence the group as a whole.

Key Success Factors for Effective Tutor

1. Continuous tutor training.

Tutors must continue to improve instructional effectiveness in small group PBL sessions. This is because the tutor must achieve competence as a skilled tutor of the PBL process, which includes multiple and sometimes conflicting roles of consultant, manager, challenger, negotiator, evaluator, and listener. Training programs should also be offered by practicing on simulated groups where tutors are observed and given direct feedback about their performance, or by observing a good functioning tutor in a tutorial group, or by highlighting situations that faculty new to PBL often describe as difficult to deal with such as giving up control, not delivering a lecture, providing feedback to student performance and confronting group conflicts (Dolmans and Wolfhagen, 1994; Rideout, 2001).

2. Maintain regular meeting of tutors in PBL.

These meetings are essential as it provides a safe environment for staff as they take risks and practice new skills. In addition, such meetings provide the opportunity of staff to learn from one another, and work with one another. These meetings offer collegiate support and dialogue, and promote personal reflections.

3. Orientating students to the expectations in PBL.

Through the PBL Orientation session, it is hoped that the mindset of students and their attitudes regarding PBL are being managed on the on-set. In Diploma in Marketing, an orientation is held for new students in PBL. The PBL Orientation was useful in helping students clarify what was PBL, the roles of tutors in the PBL environment, and to experience first hand the PBL process. It is advisable for students to experience PBL at the very start of the semester and under non-competitive or threatening conditions before they embark on the small group PBL sessions and start to solve problems on the on-set.

4. Having an ideal PBL room set-up

Ideally, it would be appropriate if the room is set up for small group of seven, with a large table and white board for ample writing and reference. Many schools with P B L curricula have special small rooms specially dedicated for PBL. Each room comprised a table with 8 chairs, 3 white boards, TV, video recorder, light box to read the X-rays, slide projector, computers with library and internet connections etc. The rooms are available to students 24 hrs. a day. These rooms are most appropriate and well suited for PBL. The rooms are also within the library and students could easily walk outside the door to borrow resource books or to surf the Internet within the library.

CONCLUSION

The ability of the tutor to use facilitatory teaching skills during the small group learning process is the major determinant of the quality and the success of any educational method aimed at developing students' thinking and reasoning skills (problem solving, metacognition, critical thinking) as they learn, and helping them to become independent, self-directed learners (learning to learn, learning management). Tutoring is a teaching

skill central to problem-based, self-directed learning (Barrows and Tamblyn 1980, Barrows 1985).

We strongly feel that the PBL tutors are critical to the quality of learning by students. Tutors with strong skills would ensure the success of your PBL programs and teach students to “learn how to learn”. Tutors with poor facilitating skills or who are indifferent would make learning difficult for students.

The authors would like to propose three ways in which an educational institution could encourage tutors to develop good tutor skills and to effectively use PBL are:

- a) Develop a performance appraisal that focuses on PBL tutor skills rather than traditional teaching skills. The roles of tutors or teachers are so different between the traditional and PBL curriculum.
- b) Create a staff performance incentive that reward good PBL tutor skills. This is based on the same rationale that argues for assessment drives students’ learning, so would staff incentives drives staff performance.
- c) Conduct regular PBL tutoring forum to facilitate exchange of best practices.

The authors have come up with a list of areas that an educational institution could look at to promote good PBL tutor skills and the success factors to ensure effective PBL tutorial sessions. The list is not exhaustive but serve as a starting point for implementing PBL and ensuring success in the implementation of authentic PBL.

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