

STUDENTS' PERCEPTIONS OF GOOD PBL FACILITATION

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ABSTRACT

Problem-based learning (PBL) is an educational method in which students learn through solving problems in small groups and reflecting on their experiences. The teacher's key role is no longer didactic but is changed to one that facilitates a collaborative construction of knowledge.

This small-scale qualitative research aims to examine students' perceptions of what good PBL facilitation is in a local polytechnic and the extent which good facilitation has helped in their learning.

This study was conducted with a class of 25 final-year polytechnic students. Data was collected via the students' self-reflection at the end of the first PBL problem scenario in the middle of the semester; a written questionnaire completed by students individually and focus group interviews.

The findings reveal that students' perceptions of good PBL facilitation and show that they appreciate more guided questions, more constructive feedback on research done and more affirmation and encouragement. It also appears that in the final year of their tertiary education, students require minimal help with group processes and self-reflection.

INTRODUCTION

Problem-based learning (PBL) is a student-centred educational method to equip students, especially those in institutions of higher learning, with the knowledge, skills and attitudes to face the demands of a dynamic world today. The intention of using PBL as an educational method is to help develop "criticality" in students, that is, to help develop capabilities and the ability to manage knowledge in ways that will equip them for life (Savin-Baden, 2003). In PBL, real-life problems are presented as the stimuli to learning and students learn through solving problems in small groups and by reflecting on their

experiences (Barrows and Tamblyn, 1980). Thus, in PBL the teacher no longer plays a didactic, transmission-oriented role but an interaction-oriented role as one who facilitates the students' collaborative construction of knowledge and actively guides the learners' learning and challenges the learners' thinking (Boud and Feletti, 1991).

This interaction-oriented role that the teacher (also known as the facilitator) plays is essential to the success of PBL as research has shown that there is a causal relationship between tutor involvement in PBL and group processes, which in turn affects student interest, motivation and achievement (Gijsselaers and Schmidt, 1990; Hmelo-Silver, 2004). In fact, student surveys of a research study by Zimitat et al (1995) revealed that 70% of students in a PBL course found tutor's roles essential to the success of the method.

Research shows that a PBL facilitator carries out two essential actions: (1) s/he guides the learning process of the group by probing, prompting, and questioning and (2) s/he assists with the group processes to ensure that the group interacts well and maintains focus (Wilkerson, 1992; Jones *et al*, 1993). Hmelo-Silver (2004) further specifies what a facilitator does: s/he models good thinking and learning strategies, scaffolds through questioning techniques, develops higher-order thinking, assists in self-reflection and assists with group processes.

The PBL facilitator guides the students' learning by pushing them to think deeply through modelling the kinds of questions the students need to be asking themselves, by

scaffolding, by helping students develop higher-order thinking and self-reflection skills. Modelling good thinking and learning strategies is necessary to demonstrate to the students these strategies and to make them aware of their own strategies so that they can assess their own reasoning and understanding for problem-solving and for self-directed learning. Scaffolding the way students learn is by asking various types of questions (Strachan, 2007: Taylor, 1986) that seek a clarification, an elaboration, a paraphrase or a verification of completeness. Such questions help to ensure that the problem is examined sufficiently and to focus their attention on what is relevant to better develop rationales for their solutions. Developing higher order thinking skills help students to justify their thinking (Pedersen & Liu, 2002) and to verbalise their analysis and interpretation as they summarise the case. Assisting with self-reflection enables the students to relate their new knowledge to their prior knowledge and to consider how the acquired learning and problem-solving strategies may be applied in future.

The PBL facilitator also assists with group processes to ensure that a cooperative climate is set and that the group moves through the stages of the PBL process with everyone contributing positively. This also includes considering whether and when to intervene, helping the students to keep to their ground rules and dealing with emotions (Schwarz, 1994).

RESEARCH FOCUS & DESIGN

Students, as the other key player in the PBL classroom, will have different experiences with various PBL facilitators and have their own ideas of what contribute to an effective learning experience. Students have a good vantage point to make judgments about classrooms as they have encountered many different learning environments and teachers usually project a consistent image of their teaching style over a period of time. In addition, some research indicates that teaching is a matter of relationships and the learning that takes place depends on the character of the relationship between the two key players in the classroom – the teacher and the students (Hargreaves, 1975; Tisher, 1984; Wubbels & Levy, 1993). Thus, it would be interesting to find out about the students' perceptions of how the interaction with their teachers affect their learning. Therefore, this study aims to examine students' perceptions of what good PBL facilitation is and how good facilitation helped their learning, particularly in relation to the two key actions of a facilitator: the guidance of the learning process and the assistance with the group processes.

Methodology

This study was conducted with a class of 25 final-year polytechnic students taking a Human Resource Management elective subject at Temasek Polytechnic. Temasek Polytechnic started using PBL as an educational approach since 1997 and in the PBL classroom at Temasek Polytechnic, students learn via the seven-stage process: group-setting, problem identification, idea generation, identification of learning issues, self-directed learning, synthesis and application, and reflection. The facilitator assists the

students in their learning throughout the seven stages, therefore, the two essential actions a PBL facilitator carries out: guiding the learning and assisting with the group processes will be evident in a Temasek Polytechnic PBL classroom.

The students participating in this small-scale qualitative study were already in their third year and had been exposed to PBL as an educational method since their first year and would have experienced several subjects being taught by at least two to three different PBL facilitators. In addition, this subject they were studying is an elective subject and this means that the class comprised of students from different classes with varied prior PBL experiences with different PBL facilitators.

In order to find out the students' perceptions of the role of their PBL facilitator, data was collected through three different ways: through the students' self-reflection at the end of the first PBL problem scenario in the middle of the semester; through a written questionnaire completed by students individually, and through focus group interviews.

Self-reflection

This particular class of students had to complete two problem scenarios for the elective subject, each approximately lasting eight weeks. And the final stage of the PBL process required the students to write a self-reflection of the learning that had taken place. A piece of self-reflection would usually include an account of how their PBL facilitator assisted with their recent PBL learning experience. The self-reflection submissions were closely examined without identifying the respondents and key words, phrases and

concepts on what good PBL facilitation was and the extent of the contribution of their current facilitator to their learning were identified. The key words, phrases and concepts were then placed into two categories: the facilitator's guidance of the learning process and the facilitator's assistance with the group processes.

Questionnaire

At the end of the semester, a simple written questionnaire (refer to Appendix 1) was administered to all the students in the class. The questionnaire consists of five questions and was completed anonymously.

The intention of the first three questions was to enable the students to contextualise their responses to the last two questions. The questions "What do you think of learning via PBL?", "How many subjects have you learnt the PBL way? What are they?" and "How many PBL facilitators have you had so far? Please name them." would assist in getting them to reflect on their personal response to their PBL learning experience and to reflect on the PBL subjects and the PBL facilitators who had facilitated their learning.

The intention of the last two questions was to allow the students to contemplate and verbalise in writing the specific ways which all their facilitators had helped them with the learning process and to get them to suggest ways of improvement. Question 4 "As you think back on the facilitators you have had, please share specific ways in which they have helped you in the learning process." would generate responses that commend the specific areas that PBL facilitators had been doing well and provide information on what students

perceived as the positive contributions of the PBL facilitators. Question 5 “What would you like your PBL facilitators to do differently in helping you learn?” would allow students to reflect on what they perceived as lacking in their PBL facilitators which they would have expected could contribute to their learning.

As only the responses to Questions 4 and 5 are relevant to the research aims, they were selected to be closely examined and once again, key words, phrases and concepts pertaining to the ways and the extent which the students’ facilitators contributed or did not contribute to their learning were identified. The key words, phrases and concepts were then categorised into the facilitator’s guidance of the learning process and the facilitator’s assistance with the group processes.

Focus group interviews

The focus group interviews were held immediately after the completion of the written questionnaires. As the written questionnaires were completed individually, focus group interviews would allow the students to collectively provide a voice to their written responses and to elaborate on what they could not express in their writing. Therefore, through the explicit use of group interaction, focus group interviews would produce data and insights that are less accessible without the interaction found in such a group (Morgan, 1993).

The size of each PBL group was five for this class and each PBL group was interviewed in turn, with each group interview lasting about half an hour. At the start of the interview,

the students were assured of the anonymity of their responses as this would eliminate some bias in the students' responses. Thereafter, Questions 4 and 5 of the written questionnaire which they had recently completed were asked. In order to help the discussion along, a list of prompts was produced and the questions were asked when the students were not forthcoming with responses. The prompts used by the interviewer are listed in Appendix 2. The intention of Questions 1 to 6 was to find out the extent that the facilitator helped with guiding the learning process, including the thinking and learning strategies, scaffolding techniques and reflection. Questions 7 to 8 aim to find out how the facilitators contributed to group processes and team building. Questions 9 to 11 are general questions to find out the characteristics, skills and positive qualities students would like their facilitators to have or perceive their facilitators have.

The key points of what the students shared were written down and key words, phrases and concepts from the written notes were examined to identify the ways and the extent which the students' facilitators contributed or did not contribute to their learning. The characteristics, skills and positive qualities of facilitators were also noted. The key words, phrases and concepts were then placed into two categories: the facilitator's guidance of the learning process and the facilitator's assistance with the group processes.

RESULTS AND DISCUSSION

The findings based on the students' self-reflection, the responses to the questionnaire and the focus group interviews were analysed and collated. The key responses of what

constitutes good PBL facilitation were categorised and reported under the two headings below: the facilitator's guidance of the learning process and the facilitator's assistance with the group processes.

Facilitator's guidance of the learning process

The students felt that learning took place when their facilitators modelled some thinking strategies so that they "know what to do next time". Moreover, the students felt that their facilitators guided their learning by demonstrating the thinking process of organizing and classifying information into topics. They also appreciated it when the facilitators helped them learn by identifying mistakes and guiding the learning back on the right track. The students were able to consider the feedback given and pick up problem-solving and self-directed learning skills from there. The students shared that their facilitators guided their learning by asking "probing questions to let them think about what they needed to find out and then helped them relate the answers back to the theory and problem". They noted how the facilitators helped to "trigger thinking in areas which they might not have thought about". The students also expressed that through the pertinent questions their facilitators asked they were able to clarify their thoughts. This suggests that a cognitive apprenticeship has been formed with the facilitator guiding the students in the learning process, pushing them to think deeply and modelling the kinds of questions that students need to be asking themselves (Collins *et al*, 1989).

The students mentioned that the facilitators prompted them for questions and "set them thinking about what the problem was about and to explain why they think they needed

the materials”. They had learnt to think carefully before asking questions and be more prepared in the event that they had to respond when “the facilitators question us back for the reasons”. They noted that they had started to ask themselves if the information they had found is relevant or sufficient and began thinking more about it, justifying if it was needed. Their thinking had also been stimulated as they had to consider how to use the information gathered in relation to the deliverable, namely, the report. This confirms how the PBL facilitators are able to guide the students to develop higher order thinking skills (Pederson & Liu, 2002).

The students indicated that the facilitators assisted them in reflecting what they have learnt, especially when it was their first time doing PBL. This is particularly so in relating their newly acquired knowledge to what they already know to the problem at hand. However, the students recognised that this kind of guidance became minimal as they progressed in their course of studies. This confirms that novice students with little experience of such learning would probably benefit from their facilitators who would help them to construct a foundation on which to build their learning and as students become more experienced in problem-based learning, they require less direction as they become increasingly self-sufficient (Neville, 1999).

Facilitator’s assistance with group processes

The students indicated that the facilitators assisted with the group processes by guiding them through the seven stages of the PBL process adopted by Temasek Polytechnic in the PBL classrooms. They expressed that learning was most evident when the facilitators

guided the group processes and their thinking with the FILA chart (a thinking tool). The students also expressed that the personality of the facilitators helped in the success of their learning. The key characteristics they listed are approachability, patience, friendliness, fairness, humour and helpfulness. They indicated that they also appreciated affirmation and encouragement from their facilitators. This concurs with previous research which found that positive teacher-student relationships aided the learning (Hargreaves, 1975; Tisher, 1984; Wubbels & Levy, 1993).

The students also noted that they formed the PBL groups on their own for this third-year elective subject and most of the time; they could solve small conflicts among themselves. However, when there was a missing member or if someone consistently failed to contribute his fair portion of the work in the group, they appreciated how the facilitators stepped in to counsel the group member and also to award the member with the grade that is commensurate with his contribution. Once again, this confirms that as students become more experienced in problem-based learning, they require less direction as they become increasingly self-sufficient (Neville, 1999).

As evident from the findings above, the students' perceptions reveal that the PBL facilitators have demonstrated good facilitation skills. However, the students also noted that there were occasions when they would like the facilitators to "guide us better in terms of the research we do, at least give some comments instead of just asking what we did and briefly run through everything." Moreover, when the facilitators did not make overt links and they had to try to make links on their own, they were uncomfortable in not

knowing whether they were doing it right. They expressed that they would appreciate their facilitators providing further assistance in this area when there was a need. They also expressed that they would appreciate it more if the facilitators did ask more questions pertaining to the verification of completeness of information. This is because there were occasions when they did not know if what they had done was sufficient and they wondered if more work needed to be done. These findings seem to contradict what research has shown about advanced students being less dependent on their facilitators (Schmidt et al, 1993; Neville, 1999).

On the other hand, research has also shown that students did become concerned about whether they were learning enough material and whether they were learning the right pieces of knowledge after the initial experience of learning via the PBL approach. This seems to reflect students' views about the kinds of learning expected within a particular discipline that has been taught traditionally (Lahteenmaki, 2001). Moreover, further research shows that students after their initial PBL experience still prefer facilitators who talk more, that is, explain unclear facts or correct them when their facts are wrong (Yee et al, 2006).

Limitations

This study's findings are tempered by several limitations. This is a small-scale study of a group of 25 students in a particular diploma at one polytechnic. Moreover, data collected from the self-reflection pieces of the students comprise information about the current final year facilitator only. The questionnaire and the focus group interviews collected

information about all the PBL facilitators that they students had had and the students could have a vague memory of their earlier facilitators and a clearer memory of their current facilitator, thereby, introducing a certain bias in the data collected.

Despite the limitations, this study shows students' perceptions of what good facilitation is and the extent which good facilitation contributed to their learning. They were also able to express areas that they need more assistance from their PBL facilitators.

CONCLUSION

The overall findings reveal students' perceptions of good PBL facilitation and what contributed to their learning, especially in the areas of the facilitator's guidance of the learning process and the facilitator's assistance with the group processes. Good facilitation is viewed as that when their facilitators' demonstrate and model thinking strategies, help them ask the kinds of questions they should be asking themselves, help them develop higher thinking skills, assist in their reflection and guide them through the group processes and intervene where necessary.

Although this is a small-scale study, there is some useful feedback that can be provided to PBL facilitators so that they can improve their classroom practice, such as students appreciating more guided questions, more constructive feedback in the area of research done and also more affirmation and encouragement. Staff developers can also take note

of the areas that the students have suggested that they would appreciate more assistance in and incorporate that into the training for PBL facilitators.

It also appears that in the final year of their tertiary education, students require minimal help with group processes and self-reflection. This seems to concur with previous research which found that different situations require different tutor behaviour to facilitate student learning (Neville, 1999; Wilkie, 2002). Perhaps a comparative study could be done between learners new to PBL and final year students in a local institution of higher learning to find out if facilitating final year students does require a different set of facilitation skills.

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APPENDIX 1

PBL QUESTIONNAIRE

1. What do you think of learning via PBL?
2. How many subjects have you learnt the PBL way? What are they?
3. How many PBL facilitators have you had so far? Please name them.
4. As you think back on other facilitators you have had, please share specific ways in which they have helped you in the learning process.
5. What would you like your PLB facilitators to do differently in helping you learn?

APPENDIX 2

FOCUS GROUP INTERVIEW QUESTIONS

Prompts to be used by the interviewer, where necessary:

1. What kinds of questions did your facilitators ask? Did the questions help you to think? If so, how?
 - clarification – “What do you mean by that?”
 - elaborating – “Can you explain a bit more about that?”
 - paraphrasing
 - verifying completeness – “Have you considered...?”
2. Did the facilitators show you how to ask such questions? How do they go about it?
3. Did the facilitators give the answers? How did you feel when they did or didn't? What would you have preferred?
4. Did the facilitators help to link knowledge acquired in previous PBL sessions? How do you see that taking place?
5. Did the facilitators use examples to illustrate? To help you understand how an application is related to practice? Can you give examples?
6. Did the facilitators help you with your reflection? How did you feel when they did or didn't? What would you have preferred?
7. Were the facilitators encouraging? How were they encouraging in verbal and non-verbal ways?
8. Did the facilitators intervene to prevent conflicts/contribute to team-building? How?
9. What kinds of characteristics do you think PBL facilitators should have?
10. What kinds of skills do facilitators need to have to ensure that students benefit from the PBL process?
11. On the whole, how have your facilitators contributed to the success of the PBL process?