

## **IMPLEMENTATION OF PROBLEM-BASED LEARNING: A REVIEW ON THE CHALLENGES**

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## **IMPLEMENTATION OF PROBLEM-BASED LEARNING: A REVIEW ON THE CHALLENGES**

### **ABSTRACT**

Problem-Based Learning (PBL) has been widely used in medical and engineering education. However, PBL adoption in social science is relatively new. Therefore, this study specifically investigated the challenges in the implementation of PBL in the social sciences. Questionnaires were distributed to students to explore their perception regarding the challenges encountered whilst executing PBL-oriented tasks. In addition, the lecturer (facilitator) perspective had also been characterised through their evaluation of students' performance. Findings indicate that the challenges consist of designing a realistic problem, changing the students' and stakeholders mind-set, the inability of students to manage internal group conflicts, limited timeframe and restricted ability of students to perform higher-order thinking.

### **INTRODUCTION**

Problem-based learning (PBL) has been widely adopted in medical schools all over the world. It has also been a salient feature of contemporary medical education for over 30 years (Azer 2011; Craig & Hale 2008; Chay-Hoon et al. 2007; Dolmans et al. 2005; Kenny & Beagan, 2004; Savery 2006; Hmelo-Silver, 2004). Besides medical schools, Ahern (2010) also highlights PBL success in delivering engineering courses in many countries. Most of the impetus underlying the adoption of PBL stems from the use of "real cases and experiences" (Kenny & Beagan 2004; and Dolmans et al. 2005).

PBL is a student-centred instructional strategy in which students work in small groups to develop solutions to the triggering problem(s) in a collaborative mode (Azer 2011 and Gijsselaers 1996). The "collaborative learning mode" refers to the process of working together, sharing of inputs/ideas as well as helping and supporting each other to understand the relevant context or principles. PBL currently represents a significant and complex transformation in the educational practices among higher-education institutions (Azer 2011; Hallinger & Lu 2011; Dolmans et al. 2005; Ahern 2010; Savery 2006; Raja Maznah et al. 2007; Hmelo-Silver, 2004). It offers advantages to students, for they become more aware of how they can put the knowledge into practice as opposed to merely receiving or restoring the knowledge passively. Besides, PBL also promotes lifelong learning among adult learners. Hence, other disciplines (including the social sciences) have also incorporated PBL to create a relatively constructive learning environment. Nevertheless, the use of PBL to deliver social science-based subjects is still limited (Craig & Hale 2008; Joham & Clarke 2012; and Pennell & Miles 2009). Therefore, there is a gap in PBL current literature.

This study emphasizes the use of PBL to deliver project management education to social science students enrolled in the Developmental Science Program at the Faculty of Social Sciences and Humanities, UKM. According to Kloppenberg (2012), Project Management is defined as the application of knowledge, skills, tools and techniques to project activities in order to meet project requirements specified in terms of its scope (size), quality (results), cost and schedule. Project management is a subject taught in many disciplines and courses. Thus, project management is expected to have a technical orientation and focus, according to the needs and usage of the particular disciplines. The emphasis in Project Management for developmental science has been on managing and evaluating development projects that benefit the target community the most. The

orientation is not only limited to the objective analysis regarding the physical design, structure and functionality, but also to the larger social cost and benefits. As far as experiential learning is concerned, few didactic tools for delivering Project Management have been identified, consisting of problem-based learning (Joham & Clarke 2012); project-based learning; and hybrid (combination of project & problem-based approaches such as those adopted by Hanney & Savin-Baden 2013). Hence, this study aims to describe the use of PBL to deliver project management within the context of social sciences.

Introducing PBL pedagogy is not a simple task (Azer 2011; and Hallinger & Lu 2011). PBL usually involved a significant amount of resources and challenges, yet there is no guarantee of its success of achieving the targeted objectives or outcomes. A dialogue between Dolman & Gijbels (2013) has also recognized an interesting gap in current studies on PBL. Dolman emphasized that more attention should be given to the issue of what condition PBL can maximize to the greatest benefit? This relates to the issue of specific environment or the context in which PBL is implemented (for example; what kind of problems are used? how many students are involved? what is their background and others?). According to Dolman, information about the details of the learning environment is often lacking. Therefore, this study contributes to the understanding about the challenges of PBL within a specific environmental context.

### **PBL, BENEFITS AND CHALLENGES**

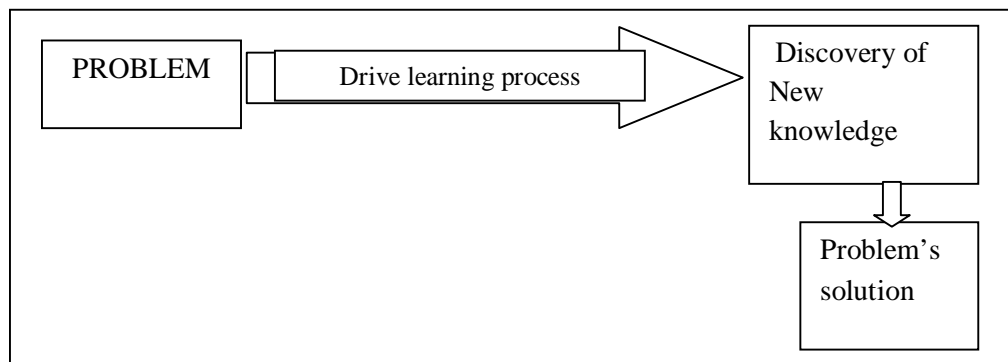
PBL is a type of experiential learning or instructional learning approach organized around self-directed investigation, explanation and resolution of meaningful problems in a collaborative small group (Craig & Hale 2008; Savery 2006 and Hmelo-Silver 2004). Experiential learning has been recognized as an established approach for adult education theory involving four continuous processes (Ahmad Raflis et al. 2010 and Miettinen 2000). Other experiential learning approaches include case-based, project-based and inquiry-based learning (Savery, 2006 and Hmelo-Silver 2004). The similarity across all instruction-based approaches is their promotion of active learning and engagement of students in higher-order thinking that necessitates critical analysis and synthesis of various principles. However, there are some specific features that differentiate PBL from other experiential learning approaches such as case-based, project-based and inquiry-based learning (Savery 2006).

In the case-based approach, a well-constructed case is used in order to help learners to understand the important elements of the problem/situation so the students are better prepared for similar situations in the future. It helps learners to develop critical thinking skills in assessing the information provided and in identifying the logic flaws or false assumptions. Cases may be used to assess students' learning after certain instruction; or as a practiced exercise to prepare learners for the more authentic application of their skills and knowledge by working on the case. Meanwhile, in project-based learning, the learners are provided with specifications for a desired end product, and the learning process is more oriented towards following the correct procedures. While completing the project, the learners will encounter several problems, thus facilitating self-learning that will benefit them in future situations. However, PBL requires the learners to define/identify the problem themselves and to develop the solution simultaneously. In addition, Sockalingam et al. (2011) also established six characteristics of PBL: (1) the use of problems as the starting point for learning, (2) small-group collaboration, (3) flexible guidance of tutor, (4) limited number of lectures, (5) student-initiated learning, and (6) availability of ample time for self-study. As far as

this action-study is concerned, PBL is relatively new in social science, thus requiring further understanding regarding its implementation.

PBL helps students to become deep and active learners by encouraging them to assume active ownership of their own learning process (Ahern 2010). Students will work in small groups to define the stimulus problems and deliver solutions to those problems (Hmelo-Silver 2004, Savery 2006, Kenny & Beagan 2004, Raja Maznah et al. 2007). It is a way of organizing teaching by introducing relevant problems at the beginning of the task cycle in order to provide context and motivation that impel the learning process. The students' learning process occurs through facilitated problem solving, which centres on the complex problem without a single correct answer (Savery 2006 and Raja Maznah et al. 2007). The primary aim is not about solving the problem, but to use the problem as the learning driver towards an in-depth explorations and discussions (Azer 2011). The PBL concept is depicted in Figure 1.

As shown in Figure 1, the strength of PBL lies in its ability to stimulate active learning that ultimately promotes self-discovery of new knowledge. In addition, the by-product of this self-discovery of knowledge can also be in the form of a creative solution to the triggering problem. Therefore, several authors have outlined relevant goals for PBL based on their action-study such as improving the learning environment (for medical school), lifelong learning skills and clinical performance, and enhancement of teamwork skills (Kenny & Beagan 2004); allowing students to become more active in the learning process, developing motivation to learn, improving their soft skills such as cooperation skills, communication skills and teamwork skills (Ahern 2010); and shorter lecturing time (Dalsgaard & Godsk 2007).



However, there are also challenges in PBL adoption. According to Dalsgaard & Godsk (2007), there are four major PBL challenges:

- a) Formulating a problem – the PBL problem should be designed to encourage the specific use of the subject matter, open-ended in the sense it does not determine the students' course of action and motivate the students' self-governed engagement. The problem should make clear that there are no definite right or wrong solutions. Besides, this instruction must be written in a way to encourage students to explore all aspects of the issues and adequately cover the subject matter. Sockalingam et al. (2011) also emphasize the importance of designing a problem as it becomes the starting point of the students' learning.

- b) Developing open-ended materials – learning should transition from the use of textbooks to the use of a few texts to provide background and an introduction to the subject matter.
- c) Restructuring the module – students’ self-governed activities are the most important aspect of the learning process. Therefore, to support active participation there must be sufficient opportunities for interaction, discussion, guidance, support and help.
- d) The changing role of students and lecturers – teachers no longer present the subject matter in its entirety, but give an introduction and provide background for the students to work on the problems. Their role has evolved into one providing guidance, answering questions, promoting dialogue, and recognizing the students’ needs for assistance. Meanwhile, student must change their role to that of active problem-solvers.

Meanwhile, Dolsman et al. (2005) discussed the challenges within three characteristics of PBL: overly structured problems, overly directive tutors and dysfunctional groups. An overly structured problem can distort the constructive and contextual learning process. Meanwhile, overly dominant or passive tutors hinder the learning process because they can distort the self-directed learning process. This can happen because overly dominant tutor will tend to spoon-feed the students with inputs and instructions, while an overly passive tutor will not motivate students self-learning behaviour. According to Hmelo-Silver (2004), in PBL the teacher is recognized as an expert learner who will exemplify good strategies for learning and thinking rather than as the expert in the content itself. Additionally, the lack of a facilitator for tutorial sessions can also be one of the challenges in PBL (Ahern 2010). Another problem in conducting PBL learning is its assessment (Ahern 2010). Ahern (2010) also mentions that students may dislike the method and find it difficult as an assignment. Traditional assessments such as presentations and reports may distort the fair evaluation of good students.

Raja Maznah et al. (2007) and Hallinger & Lu (2011) also highlight that PBL challenges can also arise from cultural boundaries. Applying PBL to the Asian context may require some adjustment due to the epistemological differences between Western and Asian people. Western education is founded on the idea that knowledge is conditional and, thus, should be continually questioned and requires the development of a critical mind that is independent of authority. Meanwhile, in the Asian context, the students simply report the outcomes of their enquiries rather than challenge the authority due to the norms of their intrinsically hierarchical society.

Therefore, further study should acknowledge differences in subjects as well as the cultural context of PBL implementation. As far as this study is concerned, our contribution lies in our attempt to explore the challenges of PBL within the context of a social science discipline as well as the delivery of Project Management within a specific context. Besides, we also combined two perspectives (students and lecturers) to identify the PBL challenges in social sciences. This approach has also been used by Sockalingam et al. (2011) in their study on the attributes of problems in PBL.

## **METHOD**

### ***Participants and Educational Context***

A group of third-year students from a social science-based program enrolled in a Project Management course during the first semester of the 2013/2014 academic session were given a

group assignment. The assignment accounts for 60 percent of the total course evaluation. The details of the assignment will be explained in the next sub-topic.

A briefing session had been conducted during the first meeting of the course. Prior to the task briefing session, the students were grouped into six small groups consisting of six persons per group. The project briefing includes an explanation of the substance of the assignment, the tutorial schedule and motivation for students to immerse themselves into the role-play as project team members. No explanation regarding “whom to see” and “how to do” are given because the students are encouraged to work independently and to think outside the box in order to develop their own project proposal. Furthermore, the group leaders and members’ responsibilities were also fleshed out. Finally, they were informed that peer-group evaluation would be used as part of the project assessment.

At the end of the semester, the students were given a set of questionnaires. The questionnaires were designed to solicit information about the PBL base on students’ perception. The questionnaire consisted of two sections: challenges and demographics. Additionally, an open-ended question is also included to characterise students’ expectations of what explanations or details they expect to be covered in the assignment briefing/instructions. The questionnaire was distributed to 36 students registered in the course; 28 of them (77%) completed the questionnaire.

Besides questionnaires, the students’ project reports were also evaluated to evaluate the quality of the completed task performed by each group.

The method used in this study is similar to Joham & Clarke (2012) who also conducted a study of PBL by using student reflections and facilitator field notes or observations.

### ***The assignment***

Third-year students enrolled in the Project Management course are required to perform a feasibility study on a specific property development project. They are assumed to be working in an established property development company and currently being asked by the top management to present a feasibility study of a potential development project. As a result, they must convince the hypothetical company’s board of directors and a group of potential investors of the project viability and profitability. Only one project will be selected by the top management. Hence, all groups compete with each other to bid for the project approval.

The students are hypothetically given nine hectares of land to be developed with specific projects. The land also has specific constraints that involve specific procedures or requirements to be resolved. The land characteristics serve as the stimulus to drive students to engage in self-explored learning in the procedural aspect pertaining to development of a particular geographic development site.

The task was divided into two phases. The first stage required the students to meet the relevant parties in order to obtain information regarding the type of land with which they are working. At this stage, the students needed to identify the authority required in order to get information about the procedural aspects. Next, the students were asked to conduct a market study to understand the needs of their potential niche buyers. The students will have to present the results of their study and to submit the first report during week eight.

The second stage involved the construction of a feasibility study based on the field work input presented during week eight. At this stage, the students need to present a convincing feasibility study on the nine hectares of land. The students were reminded to make use of all knowledge previously acquired in relevant subjects as well as to gather new knowledge related to the task. Students were also reminded to be creative and to act strategically in order to attract attention, as

only one project would be selected by the board of directors. Therefore, every group presented their own concept and proposed ideas in parallel with the type of land as well as the market study input. Additionally, the lecturer provided *ad hoc* inputs to represent current economic situations that could influence the project planning. The inputs (which are the *ad hoc* trigger) were designed to emulate real-world situations, which may expose projects to many unexpected and uncontrollable changes/variables. The feasibility study was finally presented in week 14, which is the final week of the first semester.

### ***Tutorials***

The students are required to attend at least six formal group meetings to discuss their project. The sessions were conducted during the official tutorial sessions, of which three sessions were conducted before week eight and another three sessions took place after week nine. Attendance was taken for each student according to their group membership. Apart from ensuring group-member attendance and participation in group discussion, the group leader was also responsible for submitting the attendance sheet and a one-page report to the tutor/lecturer at the end of each tutorial session. The report summarized the group activities/discussions during that particular tutorial session.

## **ANALYSIS**

### ***Respondents' demographics***

The respondents' demographics are shown in Table 1.

**Table 1. Descriptive statistic of respondents**

<b>n= 27</b>	<b>Frequencies</b>	<b>Percentage (%)</b>
Gender		
Male	9	33
Female	18	67
Education level		
Malaysia Higher Certificate of Education (STPM)	25	93
Diploma	2	7

Most of the students in SKAD 3373 were female. Therefore, 67 percent of our respondents were female and only 33 percent were male. The highest academic qualification of most of the respondents was STPM (not including the current undergraduate level of study) and only two students possessed a diploma.

### ***Students' perspectives on PBL challenges***

Based on the survey output, students' perspectives about learning through PBL are presented in Table 2.

**Table 2 Students' Responses About PBL Approach**

No.	Items	Percentage (%) of Responds				
		Not challenging at all	Not challenging	Unsure	Challenging	Very challenging
1.	Leading a group assignment	0	21.4	0	46.4	32.1
2.	Organizing tasks among the peer group	0	25.0	3.6	53.6	17.9
3.	Gaining peer-group commitment	3.6	21.4	3.6	50.0	21.4
4.	Controlling behaviour of peer-group	0	25.0	14.3	42.9	17.9
5.	Lack of knowledge	0	17.9	10.7	50.0	21.4
6.	To give instructions to peer-group		28.6	7.1	50.0	14.3
7.	Discussion time	7.1	25.0	7.1	39.3	21.4
8.	Time allocation for field work	10.7	14.3	7.1	35.7	32.1
9.	To obtain cooperation from external parties	7.1	7.1	0	46.4	39.3
10.	Analysing data	3.6	7.1	3.6	60.7	25.0

Item no. 9 (*to obtain cooperation from external parties*) and 10 (*analysing data*) exhibited the highest consensus as two major challenges to the PBL-based assignment. Almost 47 percent of students consider item no. 9 as “challenging”, whereas another 39 percent consider it as “very challenging”. Therefore, a majority – 86 percent – of students agreed to assess the item as the major challenge in the PBL project. Meanwhile, 61 percent of the respondents agreed that analysing the data was “challenging”, and 25 percent agreed that the item had been “very challenging” to them. The cumulative percentage of agreement on item 10 is also 86 percent.

The next challenging item is item no. 1 (*to lead group work*). About 47 percent responded to this as “challenging”, while 32 percent chose “very challenging”. A cumulative 72 percent of the respondents agreed on item no. 2 (*to organize task among the peer - group*) as also challenging, followed by item no. 3 (*to get commitment from the peer group*) and 4 (*to control peer group behaviours*).

Therefore, from the analysis we conclude that the students were having difficulties in obtaining cooperation from external organizations as well as in analysing the data gathered from their fieldwork. Besides, another challenge had been internally based involving group management. About 68 percent have also agreed that item no. 8, or time-constraint, as critical, especially in the performance of the field work. This is because the students had to attend other course lectures and complete other assignments, thus limiting their availability.

Apart from the questionnaire items, we also analysed the answers given by the respondents to open-ended questions. This part solicits students' expectations of how the assignment should be designed for future execution. Although not many had answered the open-ended part, the answers gathered (as shown in Table 3) indicate students' general dissatisfaction towards the PBL learning approach.



**Table 3 Students' Responses (Expectations)**

Respondent ID	Answer
26	The analysis technique should be emphasized more because it is the most important component in the project. The course lecturer should show how the project is analysed in reality by introducing a real example of how private developers analyse their project.
09	The explanation in class is not clear because we can't imagine the real project.
17	The project briefing does not go into enough detail, thus confusing students about how to start the project.
03	The explanation of the topics must be clear so that the students understand how to start the project.
22	The lecturer did not explain everything-we don't know what analysis we must include in preparing a solution to the project. We learn so many things in the classroom, but what topic must be included?

Based on the input of respondent no. 26, some students had expected more topics on analysing the project to be discussed during the class. They expected the lecturer to include a real project as an example in classroom teaching. Meanwhile, respondent no. 9 found that the project briefing was unclear because a more detailed explanation about the project from the lecturers was expected. Respondents 03, 17 and 22 also provided similar responses, which required additional clarification of project details. Therefore, another challenge can be summarized based on the students' responses: the students are still unable to complete a loosely structured assignment and they regularly voiced affinity for instruction in which the "lecturer must provide a well-structured assignment and provide a detailed explanation about doing it". Therefore, changing the students' conventional mind-set is of the utmost importance prior to the implementation of a PBL-based assignment.

#### ***Lecturer's perspective on PBL challenges***

In order to remain objective, the lecturers' perspectives were limited to their objective evaluation of visible aspects such as the number of tutorial reports sent and the quality of the two final reports. The lecturer purposely avoided disclosing any reminder about the tutorial activity report throughout the process because it had been clearly announced during the briefing session. Therefore, the lecturers were able to evaluate student responsibility and commitment to their task. None of the groups had sent their activity report during the semester.

This course had been overseen by two lecturers. One of them was the course coordinator. In order to avoid bias, the report was evaluated based on the average mark of the two lecturers. The average total marks for the two final reports of each group are shown in Table 4.

**Table 4 Final Report Evaluation**

Group	Average Mark
1	33/50
2	36/50
3	36/50
4	40/50
5	35/50
6	35/50

The general comments by the lecturers stated that the students' reports are lacking in analysis and the students had rigidly follow all examples shown in the classroom. The report did not explain other considerations that might be important, and that it merely represents a duplicate of the classroom example. Moreover, all the spontaneous triggers had been left out without attempting to include the facts in their evaluation. The report became one of the exercises for a particular course, and none of the groups had attempted to incorporate other considerations or analysis they had learnt before in other relevant subjects. However, group 4 managed to get higher marks, as they showed some effort in getting information from a real property developer on how to prepare a feasibility study.

## **DISCUSSION**

Based on our analysis, we are able to identify a few challenges in adopting PBL in a social science-based subject. Although generalizability of the study has been constrained by the limited number of respondents involved, it does offer a valuable insight for future studies as well as an opportunity in which to improve the execution of PBL in social science, specifically Project Management.

Based on our experience the first challenge is to develop the problems. Realistic problems serve as the triggers that stimulate the learning process. According to Dalsgard & Godsk (2007), the problems should be loosely structured with no definite answer in order to push the students towards self-directed learning. As social science deals significantly with people and the community, the problem must involve outsiders. In medical science, for example, people go to the hospital to seek advice and help, and, therefore, the students can participate in real-world problems as well as observe them closely. Nevertheless, in social science and particularly in the subject of Project Management, it is difficult to immerse the student in real-world situations, as most organizations are reluctant to hire them. Therefore, it is very hard to create a problem that is completely realistic because doing so would mean that the students would have to get a real developer and become actual project team members. As far as this challenge is concerned, the facilitator/lecturer can only develop a hypothetical situation that will immerse the students in the problem context. However, the hypothetical context may be insufficient, and real input is still needed in order to create meaning in the content learning process. As far as our study is concerned, we have attempted to overcome this potential challenge using two strategies:

1. We assigned different land characteristics to be considered by students before they could develop the land. By assigning specific characteristics such as agricultural land, slopes and others, the students needed to identify various inputs in order to manage the pre-development process. To complete this task, the student will have to identify the person/organization/source to obtain the information as well to design strategies to obtain or to access it. Through the self-discovery learning process, the students will become familiar with the real procedures, processes and stakeholders involved in the pre-development process.
2. In order to create awareness about the reality of the market or buyer needs, the students were required to conduct a real market study in the corresponding development area. Therefore, the project proposal is expected to align with the current market demands and context. To complete this task, the students are also required to design their own market study as well as to operationalise the market study plan.

By taking into account the two conditions, students were free to design and propose their project. As far as the hypothetical problem is concerned, we propose that PBL in social science must

possess elements that will lead the students to also consider the real context before solving the hypothetical problem.

The second problem is related to student commitment. PBL requires the students to play a role as an active learner as well as a problem-solver. The lecturer role as content provider must be reduced in PBL (Hmelo-Silver 2004, Savery 2006, Kenny & Beagan 2004, Raja Maznah et al. 2007). Based on the analysis in Table 2, item no. 10 (*analysing the data*) has also been recognized as challenging by the students. Furthermore, based on respondents' answers in Table 3, they expected the lecturers to show all techniques precisely in the classroom as well as to explain precisely how to analyse the data (see Table 3, respondents 26 and 22). PBL requires students to be highly responsible for their own task and react accordingly as adult learners. Therefore, students must change their learning perspective from passive learner to a relatively active learner.

Apart from transforming the students' perspective, it is also necessary to change the stakeholders' mind-set about engaging students with their organizations. This fact parallels the students' response to item 9 in Table 2, which is "*to obtain cooperation from the external organizations*". Many Malaysian organizations (either private or government) are very guarded about allowing outsiders access to their organizations' information. The private and confidential (P&C) conditions have restricted student involvement in learning real-world organizational problems. The students were only allowed to access basic organizational information (such as background, organization structure and product/services) offering no hints about internal problematic procedures or processes critical to the constructive learning process. Therefore, one of the challenge in PBL or any experiential learning in social science is to overcome the rejection and scepticism of external organizations (community members) in which most precious knowledge is embedded. This challenge is important to manage because most social sciences focus on the community, individual or organization. In order to manage this challenge, institutions can develop some sort of network or alliances with community organizations. It is worth crafting an official agreement or memorandum of understanding to such a network or alliance between the university-industry-community.

The third challenge is to manage the student groups. Based on Table 2, the management of team members created a big challenge for most students. This was due to equality of status among students in many aspects, thus making the assignment of responsibility a bit problematic. In our case, there was a group that encountered severe conflicts among members. Few members of the particular group came to see the course coordinator to report dissatisfaction and complaints about their group-mate and seek direct facilitator intervention to solve their group problem. As far as PBL is concerned, direct facilitator intervention should not exist in the internal group process. Besides, group conflict management is part of the learning substance of the PBL. In order to overcome group conflict, peer-evaluation can become a source of the disciplinary mechanism in PBL implementation. Peer-evaluation facilitates self-discipline amongst group members and encourages more obedience among members. Peer-evaluation allows the facilitator(s) to retain his (her) neutral position and transfer authority to group members. As far as this project is concerned, we allocated 10 percent of the project evaluation to the peer-group evaluation. At the end of the semester, the peer-group evaluation forms were distributed to all students.

Fourth, time is also a challenge for PBL, especially when the tasks involve many bureaucratic agencies or procedures. During the 14-week semester, the students completed the required task as well as attended other courses and its requirements. Therefore, some official tutorial session must be allocated in order to ensure the students have enough time to complete the project. We allocated six compulsory tutorial sessions to ensure all students participated in the learning activity. The schedule of the six tutorial sessions had been announced before the students during the early

briefing session. In order to ensure the students had sufficient time for the field work, we re-arranged the lecture slots so that at least two weeks were available for project field work.

Finally, the fifth problem in adopting PBL in social science is the inability of the students to synergize their knowledge from other subjects/disciplinary to solve/manage a problem. This can be seen from the quality of the final report marked by both lecturers (see Table 4). Although the students were reminded during the briefing session to be creative and to incorporate other relevant knowledge from other subjects, the output was strictly bounded by the topics or syllabus taught in this particular subject. Moreover, PBL requires active participation by the students. The students must take responsibility for attending all group meetings and discussion sessions and for completing required tasks voluntarily. Therefore, there is also a challenge in terms of encouraging the students to perform higher-order thinking and to show maturity as a responsible adult learner.

The first and second challenges occurred due to cultural factors as mentioned by Raja Maznah et al. (2007). Malaysian as well as other Asian countries have a different perspective with regard to the role of students and teachers. Similar to the observations by Raja Maznah et al. (2007), the culture of questioning teachers or arguing with superiors or authorities is discouraged in Malaysian culture. Teachers, therefore, are recognized as sources of knowledge, and any attempt to challenge the norms are yet to be widely accepted, at least for the group of students involved in this study. Moreover, in many cases Malaysian companies still strongly adhere to a strict interpretation of private and confidential (P&C) status. Thus, many companies (as in our case) refuse to share their internal information with the students. Meanwhile, the third and fifth challenges arise from students' limitation in terms of teaming and leadership skills and higher order thinking skills.

## CONCLUSION

PBL is an experiential learning organized around self-directed investigation, explanation and resolution of problems in a collaborative small group environment. Although PBL has been well-documented in medical education, there is a gap on PBL in social science subjects. Therefore, this study elaborates the challenges encountered by PBL adoption in social science subjects. This study was conducted within the context of Project Management course for students enrolled to the Development Science Program. Our finding indicates that the challenges consist of the following: designing a realistic problem, changing the students' and stakeholders' mind-set, the inability of students to manage internal group conflicts, limited time-frame and restricted ability of students to perform higher-order thinking. The finding highlights the need for specific studies on the factors influencing PBL group effectiveness.

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