

## PILOT STUDY TO DEVELOP A PROBLEM BASED LEARNING ENVIRONMENT FOR OPEN DISTANCE LEARNERS

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### Abstract

*This action research examines the online Problem based learning (PBL) designed for one of the courses in the Bachelor of Project and Facility Management offered at Open University Malaysia. The main aim of this study was to explore the constraints of implementing PBL and to look for possible interventions during class tutorial sessions. Within the constraints of students' attendance and the limitation of time, this project was conducted and monitored using the action research methodology. The participants were students who attended the Facilities, Planning and Design course and they were divided into two groups consisting of five members in each group. Observations and reflections from the students and facilitator were recorded for ten weeks. At the end of the research, the facilitator developed the guidelines to introduce and conduct the PBL environment for this particular course.*

**Keywords:** *Problem based learning, open distance learners, action research.*

### Introduction

Different teaching and learning strategies with high interactivity and engagement are suggested as necessary and appropriate conditions for a successful university education. Modern educational thinking is moving educators to introduce new teaching strategies to replace conventional methods of delivery. To derive at a certain learning outcome from a curriculum, most often changes to the delivery and content of the courses are clearly observed. There are quite a number of different frameworks discussed to describe the successful benefits students achieved and most frequently it emerges from collaborative learning. According to Slavin 1977 in Brophy, 2004, students will find learning more pleasurable and satisfying when they participate in active learning environments. In the collaborative learning environment, individual and team effort leading to higher level of task related interaction and behavior will be observed (Brophy, 2004).

While collaborative setting to learning paves a new method in delivery, there are other questions which have been raised about transferability and relevance of the course content to the working environment. This has cause educators to check on the structure of their university courses in both delivery and content. More open forms of learning involving collaborative learning activities as in problem based learning is recommended (Prince, 2004).

Problem based learning (PBL) which is also known as case-based learning uses "real world" problem or situation as a context for learning (Michel, 2002). Why problem based learning? The PBL environment engages students in the subject matter, encourages student development of critical thinking skills, problem solving abilities, knowledge acquisition, and ability to work productively as a team member and make decisions in new situations and acquisition of skills to support lifelong learning, self evaluation and adaptation to change (Ryan and Quinn, 1994). Likewise, comparable results was obtained from another study conducted by Duch in 2001 (Bielaczyc and Collins, n.d.). His findings included a range of skills students acquired from PBL which encompasses critical thinking, analysis and synthesis, to identify and solve complex problems, information mining to find, evaluate and use suitable learning resources, cooperative work in a team, effectively communicate in verbal and written form and continual and independent learning. In this setting learner are required to solve authentic problems which are ill-structured with multiple solutions. Students are expected to solve these problems using different perspectives and the lessons learnt from this will be used outside classroom settings (Bielaczyc and Collins, n.d.).

Similar to the constructivist philosophy, PBL views knowledge as something the learner constructs himself or herself in order to have a personal understanding of their own interaction with the environment. Besides this, PBL is unique in the sense that it encourages students to participate in the collaborative setting (Neo, 2003), thus promoting cooperative learning among students and their classmates.

Findings indicate that PBL can be supported through various instructional strategies including conferencing capabilities of the World Wide Web including asynchronous communication have been explored widely by researchers (Shi et al., 2008).

Realizing the multitude skills acquired through PBL lead the research team to explore the possibilities of implementing the teaching and learning for the Facilities Planning and Design course in the PBL environment. This is one of the courses in the Bachelor of Project and Facility Management programme offered at Open University Malaysia. The learning outcomes for this course would only be achieved if the course is conducted in a PBL environment. In the case for OUM, PBL is conducted in the face-to-face sessions between tutor and students which will then be continue in the online forum.

## **Research Objectives**

The following are the objectives of this research.

- To identify and overcome the weakness that exists during the PBL implementation via Open Distance Learning education.
- To determine the effectiveness of PBL among students.
- To develop a PBL guideline for Facilities Planning and Design via Open Distance Learning education.

The main research questions to be addressed in this research are as follows:

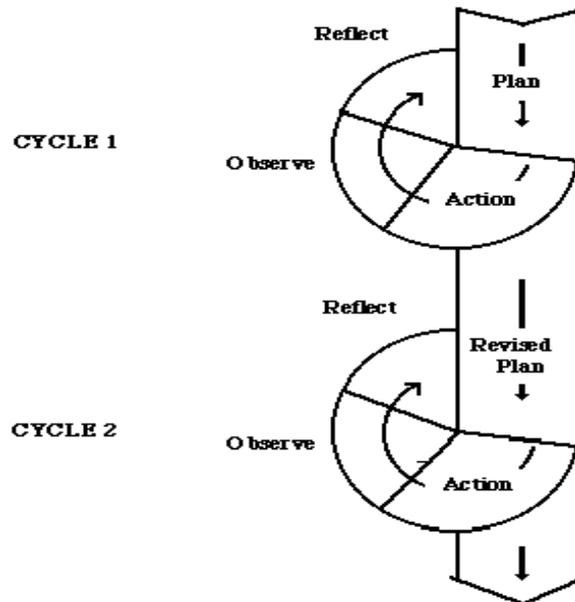
- What are the constraints encountered throughout the implementation of Problem Based Learning for this course?
- What are the interventions incorporated to ensure the smooth implementation of Problem Based Learning?
- How do students perceive the effectiveness of Problem Based Learning for this course?
- What are the criteria and the elements needed to develop a guideline for PBL to be thought via ODL?

## **Research Methodology**

To accomplish the intended goals mentioned above, this research was conducted by using action research. Why action research? It is the intention of the researchers who are the academics to understand how best this course should be conducted using the PBL environment. “If you want to do it right, might as well you do it yourself”, that’s almost all the time the saying held strongly by any action researcher, and only through doing it ourselves that certain measures can be incorporated while the teaching and learning process goes on.

In action research the act of finding the solution makes us understand our practice better – not only in what we are doing, but also the factors that affect what we do. There are two approaches in action research, the first is to sort out a problem or issue in practice. The action researcher seeks a solution but he or she will have to use the traditional research attitude. In both approaches, the researcher has to be open, honest and rigorous in the process.

As shown in Figure 1, Kemmis (1986) introduce the action research which involves a cycle or spiral of planning, action, monitoring and reflection.

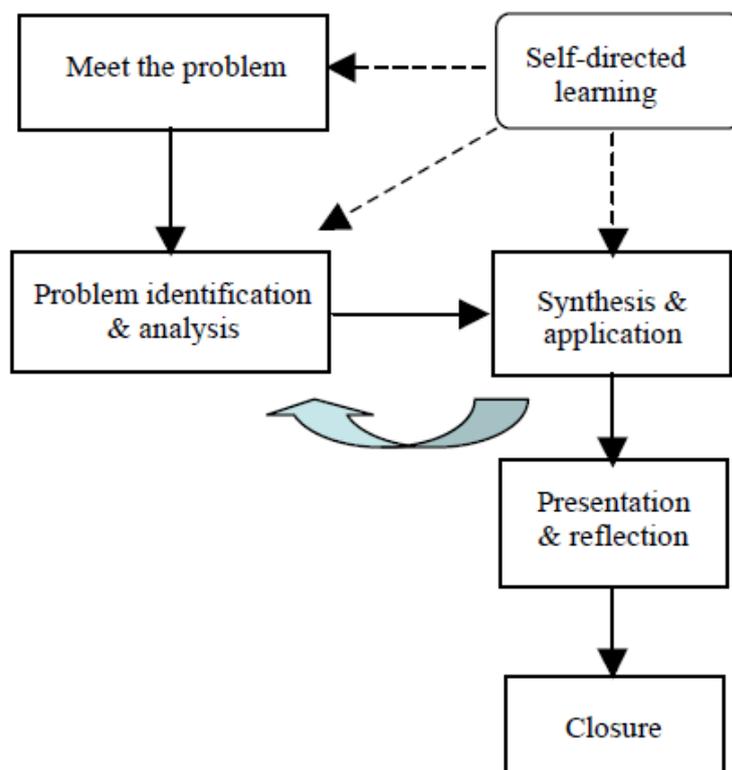


**Figure 1:** Action research cycle

The prime criterion for choosing a particular data gathering method in action research is whether it is anticipated that the method will give useful information about the practice under study. For the purpose of this research the main source of data will be collected from the students involved in the PBL environment. Different research methods explain only particular aspects of a situation. It takes a good researcher to employ a triangulation of methods in seeking evidence of the effectiveness of their practice. The participants in this study consisted of 10 students who have registered for the course. The students were divided in two PBL groups of 5 respectively. The research was conducted in the first tutorial of the May semester of 2014 and it lasted for 10 weeks. Although the research is done by applying the action research strategy, the researcher has to develop a Problem Based Learning setting before the actual research can be conducted.

### **Framework for Problem Based Learning Environment**

The understanding of PBL is very critical in order to develop a PBL environment. According to Syed in 2005, PBL is initiated through a “realistic problem” which will then engage the learner to find a solution. Students collaborate in small teams to identify, find and construct knowledge on a new concept that they need to learn in order to solve problem. The academics are there and have the responsibility to facilitate the students. The responsibility and direction of learning is assumed by the students. Students will learn in cooperative teams, where they need to interact and communicate to share knowledge, discuss their understanding and debate conflicting opinion. Figure 2 shows the framework of the PBL process introduced by Syed (2005).



**Figure 2:** Framework of PBL process (Syed, 2005)

Syed (2005) identified five main stages in his framework to implement PBL. The first stage in his framework is *Meet the Problem*. In this stage, the problem scenario or also known as problem format questions need to be developed. Here, the students are required to read and understand the problem format by doing their background reading (self-directed learning). According to (Brian, 2011) the design and development of the problem format need to be authentic, ill-structured meaning that there is more than one way to solve the PBL problem. The second stage is *Problem identification and analysis*. In this stage, the students need to perform brainstorming activity to analyze problems and issues. Through this activity, student will identify knowledge and skills to solve issues. In the third stage, students are required to report their findings and recovery from research to their teams. Main activity by students is through sharing information. This third stage is known as *Synthesis and application*. The next stage according to (Syed, 2005) is *Solution presentation and reflection*. The solution to the problem is presented to the class, followed by more probing questions by the facilitator to ensure deeper learning. Students are asked to reflect on the content as well as the process. The last stage in implementing PBL is *Closure*, whereby here the facilitator's integrates various knowledge learnt from solving the problem and encourages students to give opinion for future learning and application.

## Preparation for Action Research

### *Meet the Problem*

The implementation of online PBL was quite challenging. The first initiation was to develop the understanding on how PBL works. According to Barrows (1998), he argued that “authentic PBL” has five key characteristics:

- *Problem-based*. It begins with the presentation of a real life problem.
- *Problem-solving*. It supports the application of problem solving skills required in “clinical practice”. The role of the instructor is to facilitate the application and development of effective problem-solving process.
- *Student-centred*. Student assumes responsibility for their own learning and faculty act as facilitators. Instructor must avoid making students dependent on them for what they should learn and know.

- *Self-directed learning.* It develops research skills. Student need to learn on how to get information when it is needed and will be current, as this is essential skill for professional performance.
- *Reflection.* This should take place following the completion of problem work, preferably through group discussion, and is meant to enhance transfer of learning to new problems.

Aligning the five PBL characteristics and the framework of PBL process (Syed, 2005), was the first challenge. The problem-based questions called Problem Format has to be developed first for the course. In order to develop the Problem Format, a scenario that will fulfil some of the course learning outcomes for Facilities Planning and Design has been identified and described below:

*“One of the clients in your organization has requested for their project/product to complete in shorter period of time. The top organization identify that one way to reduce the completion lead time of the project/product is by improving the layout. As the head of Facility Department in your organization, you are given a task to develop various alternatives layout design of your operation site that will improve the lead time of the project/product to complete.”*

The problem statement above fulfil four out of five course learning outcomes stated below:

- Develop the knowledge and skills needed to design and implement efficient and safe facilities.
- Identify the layout types and analyse the problems and systematically develop a plan layout using appropriate tools.
- Plan, allocate and implement appropriate space design and management.
- Develop computer skills needed in facilities planning and design.

The problem format was included inside the PBL module for the course facilities planning and design. The module was developed initially to introduce the student to understand the PBL methods. Figure 3 shows the forum used for the course introduction and PBL discussion forum. The PBL forum was divided into two stages PBL session 1 discussion forum and PBL session 2 discussion forum.

Online Discussion (EBME3103) (AMINUDDIN BIN SETH)

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	Topic(s)	Message(s)		Last Message Posted	
<b>SG - EBME3103 Facilities Planning Design</b>					
<a href="#">Introduction</a>	1	4	All Read	Re : Re : Re : Salam perkenalan By HISHAM BIN JAAFAR Posted on 31 May 2014 11:20:18 AM	
<a href="#">General Concerns</a>	0	0	All Read	No forum posted	
<a href="#">Discussion on Assignment / Examination</a>	1	5	All Read	Re : Re : Re : Mohon Penerangan Format Tugas By Aminuddin Bin Seth Posted on 29 May 2014 02:55:28 PM	
<a href="#">Facilities Planning and Design Full Version</a>	0	0	All Read	No forum posted	
<a href="#">Cover And Credit</a>	0	0	All Read	No forum posted	
<a href="#">Table of Contents</a>	0	0	All Read	No forum posted	
<a href="#">Part One Course Introduction</a>	0	0	All Read	No forum posted	
<a href="#">Part Two Learning Guide</a>	0	0	All Read	No forum posted	
<b>PBL Session 1</b>					
<a href="#">PBL Discussion Session 1 Group 1</a> This forum is a medium specially made for: 1. PBL Session 1 Online Discussion 1 2. Group 1 Discussion Only 3. Refer Assignment Rubric for details	3	9	3 New	Re : Re : Contoh By HAIDIL MUSTAFA MOHD DIN Posted on 02 Jul 2014 01:50:39 AM	
<a href="#">PBL Discussion Session 1 Group 2</a> This forum is a medium specially made for: 1. PBL Session 1 Online Discussion 2. Group 2 Discussion Only 3. Refer Assignment Rubric for details	3	88	3 New	Re : Re : Re : Re : Group 1 By MAHYUDDIN BIN MOHD YASSIN Posted on 24 Jun 2014 09:24:26 PM	
<a href="#">Introduction to PBL</a> Welcome to all EBME3103 Facilities Planning and Design students to Problem Based Learning (PBL forum).  This forum is developed for the purpose of updating information on PBL activity.	2	8	All Read	Re : Re : Learning Material Slides from PBL Werkshop By Aminuddin Bin Seth Posted on 03 Jun 2014 10:48:37 AM	

**Figure 3:** Problem based learning discussion group forum medium

Although the PBL module and the assessment rubrics have been shared in the forum, reflection shows that the student need more explanation from the facilitator on the method to conduct PBL. These demands for “PBL Introduction Workshop”. The information was put up in the announcement in the student’s forum. The workshop was divided into two segments, a segment on Introduction to PBL and the PBL group discussion among students. In segment one; the students were introduced on how to perform PBL. Figure 4 shows the

process flow of the implementation of PBL. The process flow was used to explain to students on the planning and scheduling of the PBL throughout the semester. It was further enhanced to include the responsibility for both the facilitator and the students respectively.

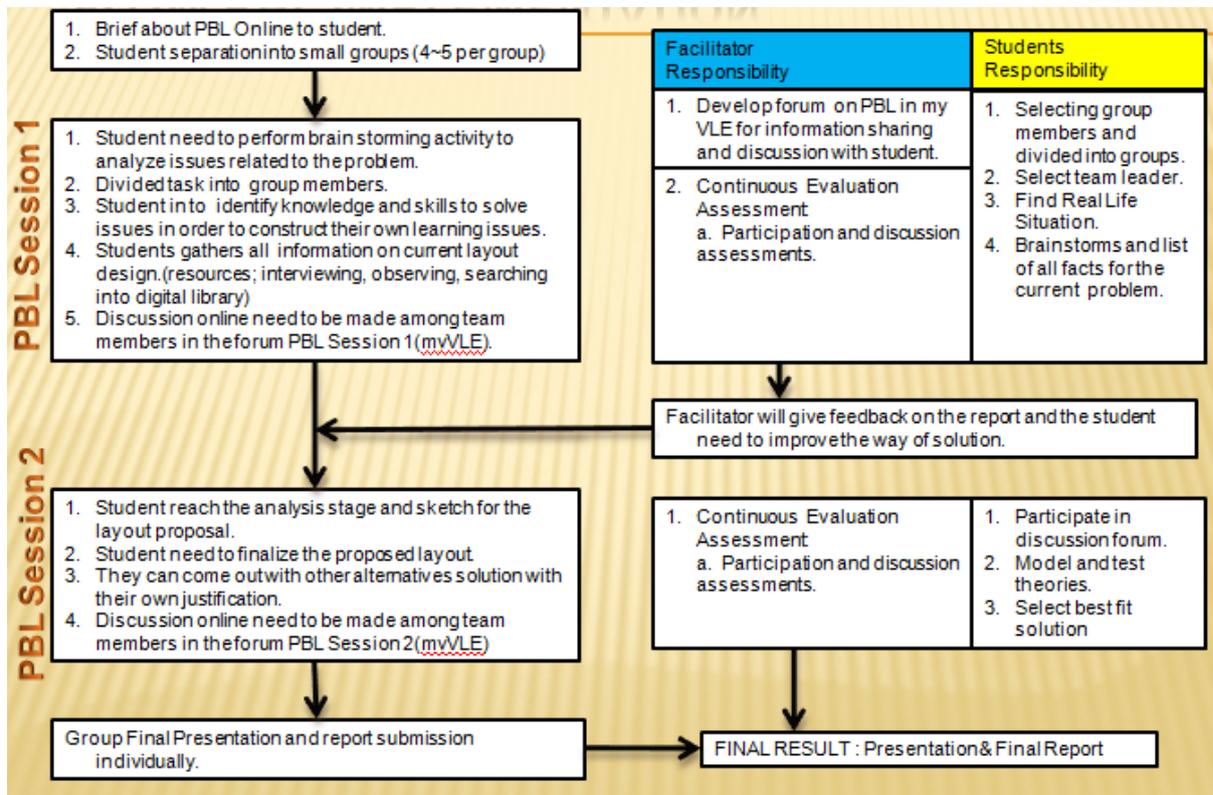


Figure 4: Problem based learning process flow

### Problem Identification

According to Syed (2005) in his PBL framework, the second stage in implementing PBL is the problem identification stage. In this stage students need to perform brainstorming activity to analyse the problem and issues. In this study, the problem identification activity was done during segment two of the workshop. Students are introduced to the brainstorming activity and environment. The student needs to perform continuous brainstorming among their team members in order to achieve the final objective.

### Reflections from the Workshop

#### Student Reflections

Feedback from the students was collected after the attended the workshop. Reflection from the students shows that 80% of them who had attended the workshop agreed that PBL help them in problem solving activity where they try to resolve actual problem through group discussions. While 60% of the students agreed that PBL help them is organizing and planning for their assignments. Almost 60% of the students agreed that PBL activity helps in solving problem through various ideas from different working perspectives. Figures 5 and 6 show the brainstorming activity conducted during the workshop.



**Figure 5:** Picture taken during the PBL group discussion



**Figure 6:** Student perform brainstorming activity to analyze the issues

### *Facilitator Reflections*

Students are not interested to participate in the forum during the beginning of the semester. Although the information on the PBL Introduction Workshop was shared among all students in the forum, only 50% of the class came for the workshop. The distance factor for not attending the workshop is not a reason to be accepted since a student from Penang came to join the workshop. It was observed that the workshop has created positive interest to the students on PBL. This can be seen from the continuous active discussion from the students who attended the workshop. Students from group 2 who attended the workshop showed more online discussions as compared to those from Group 1. Group 2 had posted 88 messages in the forum for session 1 and 29 messages for session 2. The numbers of participation are shown in Figure 7 for both groups. From this observation, it shows that it is very important for students to attend the PBL introduction workshop in order for them to apply PBL correctly. One issue which arise here is how do we ensure students attend the workshop.

PBL Session 1					
<p><b>PBL Discussion Session 1 Group 1</b> This forum is a medium specially made for: 1. PBL Session 1 Online Discussion 2. Group 1 Discussion Only 3. Refer Assignment Rubric for details</p>	3	9	All Read	Re : Re : Contoh By HAIDIL MUSTAFA MOHD DIN Posted on 02 Jul 2014 01:50:39 AM	Modify Remove
<p><b>PBL Discussion Session 1 Group 2</b> This forum is a medium specially made for: 1. PBL Session 1 Online Discussion 2. Group 2 Discussion Only 3. Refer Assignment Rubric for details</p>	3	88	All Read	Re : Re : Re : Re : Group 1 By MAHYUDDIN BIN MOHD YASSIN Posted on 24 Jun 2014 09:24:26 PM	Modify Remove
<p><b>Introduction to PBL</b> Welcome to all EBME3103 Facilities Planning and Design students to Problem Based Learning (PBL forum).  This forum is developed for the purpose of updating information on PBL activity.</p>	2	8	All Read	Re : Re : Learning Material Slides from PBL Workshop By Aminuddin Bin Seth Posted on 03 Jun 2014 10:48:37 AM	Modify Remove
PBL Session 2					
<p><b>PBL Discussion Session 2 Group 1</b> This forum is a medium specially made for: 1. PBL Session 2 Online Discussion 2. Group 1 Discussion only 3. Refer Assignment Rubric for details assessment</p>	2	8	All Read	Re : Re : Re : Re : Re : Pelan Premis Sediada Dan Pelan Rekaan Semasa By KAMARUDIN B ABU BAKAR Posted on 26 Jun 2014 05:56:59 PM	Modify Remove
<p><b>PBL Discussion Session 2 Group 2</b> This forum is a medium specially made for: 1. PBL Session 2 Online discussion 2. Group 2 Discussion Only 3. Refer Assignment Rubric for details assessment</p>	1	29	All Read	Re : Re : By HAIRUNNISA BEGUM BINTI ABDULLAH Posted on 29 Jun 2014 12:22:09 AM	Modify Remove

Figure 7: Numbers of group forum participations by each group

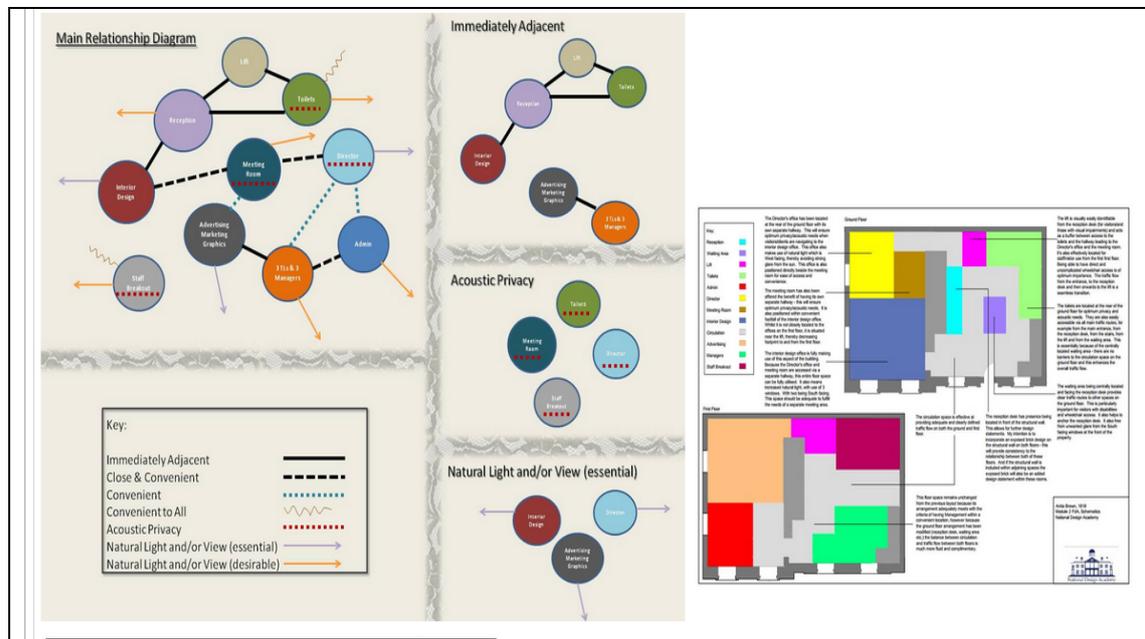


Figure 8: Knowledge sharing effort posted by student in the PBL forum

### Reflection from PBL Session 2

In the middle of the semester, after the students had gone through the experience doing the discussion using forums, another face to face session of PBL session 2 was conducted in the classroom as mention in Figure 4. The following are the reflections of the performance of PBL Session 2 obtained from the facilitator and students.

### Student Reflections

Students complained that they have difficulties in organizing the forum. The students in group 2 mentioned that the topics discussed are not in order and quite often they get very late feedback from other group members.

Another main issue raised by the students was that some questions posted in the group discussion were not being answered accordingly, answers were not focused and not direct to the question. They also feel that without the face-to-face tutorial sessions, the group members faced difficulty to understand the necessity of the topics to be discussed.

### *Facilitator Reflections*

Discussion in the forum has led to the existence of new knowledge and information sharing among group members (Figure 8). Again the active participation in the forum was from Group 2 who attended the PBL Introduction Workshop. This is one of the main criteria which is necessary to be included in the guideline. Student's attendance in the workshop is of utmost importance. To ensure the smooth running of PBL, the facilitator has to have an excellent knowledge of PBL in order to develop good ill structured problems.

Although the participation was good, it was observed that the discussion was somewhat not in sequence due to lack of emphasis of the students. Some questions posted were not discussed in detail and thus the topic was not completely discussed to solve the issues. In order to resolve this issue, one student in the group was selected to be the group moderator or leader so that the relevant topics or questions will be discussed in-depth. The facilitator has an important role to play in the forum to safeguard the discussions held in the forum.

### **Issues in Implementing PBL via Online**

Some issues were observed from the overall implementation of PBL via online using forum as the medium of discussion. The issues are:

- Participation for the PBL Introduction Workshop – Findings shows that students who do not attend the workshop has very low scores due to lack of exposure on how to report on the PBL situations given to them.
- Location of Students – Once student numbers increases and located at various learning centers, the facilitator will have to search for solutions on how to introduce then to PBL.
- Training – Facilitators need to be trained on the PBL teaching strategy.
- Guideline – A detailed guideline both for students and facilitators need to be developed in order to assist the students and facilitators on the right way to conduct and assess the PBL activity.
- Learning Environment – Using my Virtual Learning Environment (myVLE) as the medium for forum discussions shows some weakness in conducting the PBL discussion effectively. As mention in the reflection above, the students have difficulties in organizing and sequencing the discussed topics. Some of the responses from the group members were too late. This issue can be resolve by having a real time discussion method instead of forum discussion.

### **Importance and Benefits of the Research to OUM**

The study proved that it is a challenging task to apply the online PBL for working adults. Although there are a number of issues encountered during the implementation of PBL during the trial period, the researchers hope to explore further in ensuring that PBL will be the prime teaching and learning strategy for working adults so that the skills acquired are transferable and relevant to the working environment. The findings from student's reflection revealed that PBL encourages them to acquire knowledge through self-study, they learn to work in groups and manage group projects. PBL also encourages self-motivation, curiosity and thinking and it makes learning more meaningful. In this study PBL has improved the quality of participation in the myVLE forum.

The results from this study have enlightened the researchers to prepare a considerably adequate guideline that will support PBL environment especially in the context of open distance learning. It is hope that the guideline can be applied as a document to conduct PBL for this course and with further improvement and enhancement it can be a standard document for any course delivered using the PBL learning environment.

**Read**



**Re :** PBL Method  
**Posted By :** MOHD ISMAIL BIN MOHAMED SABRI  
**Reply To :** Aminuddin Bin Seth  
**Attachment :** No file attach

30 May 2014 07:58:35 AM  
 26 May 2014 10:28:41 AM

Assalamualaikum & salam sejahtera,

Refer to EBME3013-Facilities Planning and Design, where all student required to perform all discussion related to this topic highlighted based on problem based learning (PBL) method, where;

- a) Student learn through a "Realistic Problem" engaged and find the solutions.
- b) Student perform through a small groups/teams to identify, find and construct knowledge to elaborate any issue and find the solutions/answers.
- c) Faculties just facilitate the student, where student responsible to form the direction to solve the problem.
- d) Interaction and communicating among student to share knowledge, discuss their understanding and debate conflicting opinion

Note : A participation from all group members in this discussion needed to clear and understanding fully on the definition of the Problem Based Learning (PBL).

**PBL Discussion 1**

1st steps - Clear and detailed discussion on the definition of PBL method?

**Problem-based learning (PBL) method.**

- is an exciting alternative to traditional classroom learning with PBL, your teacher presents you with a problem, not lectures or assignments or exercises. Since you are not handed "content", your learning becomes active in the sense that you discover and work with content that you determine to be necessary to solve the problem.

2nd steps - Clear and detailed discussion on the current layout design?

3rd steps - Clear and detailed discussion on types of layout for improvement?

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**Appendix**

**FACULTY:** FACULTY OF SCIENCE AND TECHNOLOGY

**PROGRAMME:** BACHELOR OF SCIENCE IN PROJECT AND FACILITY MANAGEMENT

**SUBJECT (NAME AND CODE):** FACILITIES PLANNING AND DESIGN (EBME3013).

**TITLE OF PROBLEM:** “MODEL MY LAYOUT”

**DURATION OF PROBLEM:**

**BASE SUBJECT:**

**POSSIBLE INTEGRATION WITH THE FOLLOWING SUBJECTS:** NA

**TOPIC’S LEARNING OUTCOMES:**

<b>1. OUTCOMES</b>	
<i>Knowledge</i>	<i>Process</i>
1. Design facility layout with the consideration of: (a) No of Alternatives Layout. (b) Designing no of appropriate handling system. 2. Identify basic requirement for the block layout design. 3. Develop a Layout Planning Procedures. 4. Reporting and Presentation skills.	1. Brainstorming activity to analyze problems and issues on the Layout Development. 2. Use the knowledge of Layout Procedures for the developments. 3. Layout Development using Software. 4. Collaborative team work. 5. Learn independently. 6. Conduct oral presentation (in CD).
<b>2. PROFILE OF STUDENTS</b>	
Course of Study :	Bachelor of Science in Project and Facility Management with Honours.
Numbers of Students :	_____
Level of study :	Bachelor
Experience in PBL :	None
<b>3. PRIOR KNOWLEDGE &amp; SKILLS</b>	
1. Knowledge on Facilities Planning. 2. Knowledge on Layout Planning Models. 3. English Language (presentation and communication skills). 4. Writing skills.	
<b>4. PROBLEM FORMAT</b>	
“MODEL MY LAYOUT”	
One of the clients in your organization has requested for their project/product to complete in shorter period of time. The top organization identify that one way to reduce the completion lead time of the project/product is by improving the layout. As the head of Facility Department in your organization, you are given a task to develop various alternatives layout design of your operation site that will improve the lead time of the project/product to complete.	

<b>5. PILOT-TEST PROBLEM</b>			
<i>Facts</i>	<i>Ideas</i>	<i>Learning Issues</i>	<i>Resources Needed / Action Plan</i>
<p>One of the clients in your organization has requested for their project/product to complete in shorter period of time.</p> <p>The top organization identify that one way to reduce the completion lead time of the project/product is by improving the layout.</p> <p>You, as the head of Facility Department in your organization, you are given a task to develop various alternatives layout design of your operation site that will improve the lead time of the project/product to complete.</p>	<p>Team must identify project/product that has longer period of time in your organization.</p> <p>Team must be able to analyze weakness and advantages of layout.</p> <p>Team must be able to integrate the Handling Systems and Layout design.</p> <p>Team member must have knowledge/ methods to develop various alternatives layout</p> <p>Team member must have knowledge/ methods to improve the lead time by improving the handling process of work at the operation site.</p>	<p>What is the current project/product in your organization?</p> <p>What are types of layout?</p> <p>What are Handling Systems and Layout design?</p> <p>What are the methods available to develop various alternatives layout?</p> <p>How the improved layout will not jeopardizing the functions and quality of the product/project?</p> <p>How the improved layout and at the same time improve the lead time of the project/product to complete?</p>	<p>Primary resource: a Facilities Planning &amp; Design textbook and notes.</p> <p>Internet – Journal, proceedings, etc. (browse into digit library)</p> <p>On-hands product analysis activity at Lab.</p>
<b>6. FOLLOW-UP AFTER PROBLEM REVIEW</b>			
<p>1. Followed Up by: e-Tutor Date: 1<sup>ST</sup> Session Duration : 25/05/2014 ~ 15/06/2014 Weight : 10%</p> <p>Objective:</p> <ol style="list-style-type: none"> <li>To ensure that the students understands the PBL method.</li> <li>To ensure that the students gathers all information on current layout design.</li> <li>To ensure that the students already start identifying types of layout for improvements.</li> <li>To ensure student submit PBL Session 1 Summarize Progress Report.</li> </ol>			
<p>2. Followed Up by: e-Tutor Date: 2<sup>ND</sup> Session Duration : 16/06/2014 ~ 29/06/2014 Weight : 10%</p> <p>Objective:</p> <ol style="list-style-type: none"> <li>To ensure that the students already reach the analysis stage and the sketches for the proposed layout.</li> <li>To ensure that the students finalize the proposed layout.</li> <li>To ensure student submit PBL Session 2 Summarize Progress Report.</li> </ol>			

3. Followed Up by: e-Tutor

Date: 3<sup>RD</sup> Session

Duration : 13/07/2014

Weight : 20%

Objective:

1. To ensure that the students perform final presentation. – 13/07/2014
2. To ensure student submit PBL Final Report. – 06/07/2014

#### **7. PROBLEM-CRAFTING TEAM**

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