

THE CHALLENGES WITH PROBLEM-BASED LEARNING: A CASE STUDY ON MUFY STUDENTS STUDYING ECONOMICS AND INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

Pratiba Narayanasamy¹, Esther Seow²

¹ Sunway College Kuala Lumpur, MALAYSIA

² Sunway College Kuala Lumpur, MALAYSIA

pratiban@sunway.edu.my, esthers@sunway.edu.my

+603-74918622 ext: 8044, +603-74918622 ext: 8254

1 INTRODUCTION

Problem-based learning (PBL) is a method that challenges students to learn through engagement in a real scenario. It helps to develop problem solving strategies and disciplinary knowledge bases and skills by engaging students in an active role of problem solvers (Hmelo-Silver, 2004). The PBL approach originated from the medical school and is currently used in many different schools. This research paper is focused on the challenges of problem-based learning faced by students enrolled in the Monash University Foundation Year (MUFY) program offered in Sunway College, Malaysia. In order to carry out the research, two subjects which are Economics and Information and Communication Technology (ICT), are used. In today's learning, PBL is considered an ideal learning approach which incorporates teamwork, independent learning, critical thinking and problem solving. Thus, the purpose of this research is to employ PBL and examine the challenges encountered by students learning using this problem-based approach.

2 BACKGROUND

The MUFY program is a preparatory course (designed and managed by Monash College, Australia) for high school leavers with which students gain entrance to an undergraduate course in University. The MUFY program is offered on a modular or semester basis. Each subject is divided into two units, i.e. part 1 and part 2. In total, the program offers eleven subjects in twenty-two units. Students have the option of choosing between eight and ten units which must include English 1 and English 2. The subjects are Accounting, Biology, Chemistry, Economics, English, Globalization, Information and Communication Technology (ICT), Mathematics, Fundamental Mathematics, Advanced Mathematics and Physics. Students are assessed through a mix of coursework (assignments, class tests, research projects, and presentations) and final examinations.

Sunway College is a private educational institution set up in 1987 offering a wide range of courses in many disciplines. The pre-university courses offered are MUFY, A-levels, AUSMAT (Australian Matriculation), CIMP (Canadian International Matriculation Program) and FIA (Foundation in Arts).

PBL is an approach whereby students are given a problem, followed by a systematic, student centered enquiry process (Barrows & Tamblyn, 1980). On the other hand, the traditional learning method is of receiving instruction that takes place face to face in a traditional class setting. Students are given information to memorize and then a problem is assigned to illustrate how to apply it (Refer to Figure 1).

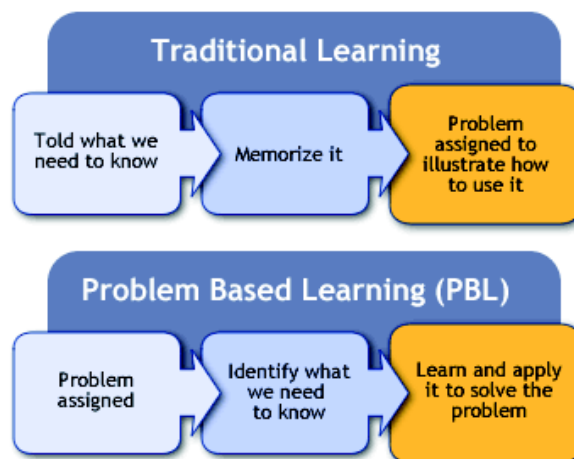


Figure 1: Traditional Learning versus Problem-Based Learning

Most students who enroll into the MUFY program in Sunway College are mostly Malaysians who have gone through the Malaysian high school system which predominantly employs traditional learning. There is a growing emphasis in incorporating problem and project-based learning in today's educational curriculum (National Research Council, 2011). Shaping the curriculum and instruction around critical thinking, problem solving, self-management and collaboration skills (Darling-Hammond 2011; Halpern, 2003) is important to prepare students for careers that require abilities to work effectively in groups and to apply their problem solving skills in these social situations. However, pre-university educators today find it a challenge in molding a generation of thinkers and good problem solvers, which are essential for survival in university.

Hence in MUFY, the Economics and ICT subjects incorporated PBL in their syllabi, specifically in the class assessment tasks. For most MUFY students, the transition from traditional learning to PBL seems to be rather overwhelming. As such, this research intends to examine the difficulties and challenges encountered by the students in this paradigm shift.

3 RESEARCH METHODOLOGY

The sample of students used in this study consists of a combination of MUFY students who are studying Economics and ICT units in Semester 2, 2013 and Semester 1, 2014. Classes and assessments were conducted using the PBL approach. The students were given the assignment question (the problem) at the beginning of the semester before the study area is taught. They are then required to identify what they need to know and learn how to apply it to the problem given.

3.1 Interview

A random selection of students from the sample was interviewed to gain more detailed and rich information and to obtain their views (Kervin et al., 2006). For this study, students are asked structured and open – ended questions at the end of the semester (after their PBL experience). The interviews are done in an informal setting to probe their perceptions and views on the problems and challenges they faced with the PBL approaches implemented throughout the semester.

3.2 Questionnaire

For the purpose of this study, a questionnaire is given out to students who have been assessed using the PBL approach. This questionnaire was given after the completion of PBL assessment tasks. The questionnaire is designed to obtain students' feedback on the challenges they faced with the PBL approach. There are two parts to the questionnaire; the first consists of structured questions and the second, open ended questions. These questions obtain students' thoughts and opinions on PBL and it also enables students to indicate the problems and challenges they face. This is important as it provides an insight as to whether students were able to engage in the PBL learning process.

3.3 Observation

The students are observed during class when PBL approaches were implemented through class activities. During a typical class in a PBL setting, students are divided into small groups, given a problem or task to solve and present their solutions in class. The problem solving process undertaken by the students are observed, highlighting in particular the challenges and issues faced during this experience.

4 REFERENCES

- Barrows, H. S. & Tamblyn, R.M. (1980). *Problem-Based Learning: An Approach To Medical Education*. New York: Springer.
- Chang, C. C., Jong, A. & Huang, F.C. (2012). *Using Electronic Resources to Support PBL*. J. Educational Computing Research, 46(2), 195-206. doi: <http://dx.doi.org/10.2190/EC.46.2.e>
- Darling-Hammond, L. (2011). Policy frameworks for new assessments. In P. Griffin, B. McGaw, & E. Care (Eds.). *Assessment and teaching 21st century skills*. Heidelberg: Springer.
- Finkelstein, N., Hanson, T., Huang, C.W., Hirschman, B., and Huang, M. (2011). *Effects of Problem Based Economics on High School Economics Instruction*. (NCEE 2012-4002rev). Washington, DC: National Center for Education evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Goodman, R. J. B. (2010). *PBL: Merging of Economics and Mathematics*. J Econ Finance (2010), 34, 477-483. doi: 10.1007/s12197-010-9154-7
- Hmelo-Silver, Cindy E., Duncan, Ravit Golan, Chinn, Clark A. (2007). *Scaffolding and Achievement in Problem-Based and Inquiry Learning: A Response to Kirschner, Sweller, and Clark (2006)*. Educational Psychologist 42 (2): 99. doi:10.1080/00461520701263368
- Hung, W. (2011). *Theory to reality: A Few issues in Implementing PBL*. Education Tech Research Dev (2011), 59, 529-552. doi 10.1007/s11423-011-9198-1
- Kervin, L., Vialle, W., Herrigton, J., Okely, T. (2006). *Research For Educators*. Cengage Learning
- National Research Council (2011). *Assessing 21st century skills*. Washington, DC: National Academies Press.