



UNIVERSITI PUTRA MALAYSIA

ENHANCING STUDENTS' PROBLEM SOLVING SKILLS USING PROBLEM-BASED LEARNING AS AN INSTRUCTIONAL COMMUNICATION APPROACH

ZULIDA BINTI ABDUL KADIR

FBMK 2013 19



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**DOCTOR OF PHILOSOPHY
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By

ZULIDA BINTI ABDUL KADIR

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfillment of the Requirements for the Degree of Doctor of
Philosophy**

July 2013

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Abstract of Thesis Presented to the Senate of Universiti Putra Malaysia
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy

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Chair: Ezhar bin Tamam, PhD

Faculty: Modern Languages and Communication

Malaysian graduates do not fulfill the criteria as good potential workers as they are not efficient at the workplace and lacking of soft skills. One of the reasons why our graduates are not fulfilling the industry needs is due to low problem solving skills, which is one of the important aspects of soft skills (Bernama, 2010). To address this issue, the Ministry of Higher Education has proposed several instructional approaches to be used in class, and one of them is problem-based learning (PBL).

This study was designed to examine the application of Problem-based Learning as an instructional communication in class, which is believed can help students in enhancing their problem solving skills. A quasi-experimental study was done in investigating the effectiveness of problem-based learning (PBL) as an instructional approach. Two groups of students were selected as

the subjects of this research: the PBL group and non-PBL group. Subjects were assessed on their problem solving skills at the beginning and at the end of the semester. For the PBL group, their perceptions towards PBL environment and their intrinsic motivation were measured before and after receiving the PBL treatments.

In measuring the problem solving skills and solutions on PBL treatments, two inter-raters were employed in assessing them from the aspects of “accuracy” and “quality”. The “accuracy” and “quality” were measured using rubric used in Malaysian University English Test (MUET) examination. Selected questions from Motivated Strategies for Learning Questionnaire by Pintrich and DeGroot (1990) and Problem-based Learning Environment by Senocak (2009) were used in measuring students’ intrinsic motivation and their perception towards PBL environment. Furthermore, in examining PBL efficacy, this study used Social Development Theory by Vygotsky and The Toulmin Model of Argumentation.

The findings revealed that there were significant differences on students’ problem solving skills in PBL group compared to non-PBL group. Students in PBL group had better problem solving skills after experiencing four PBL treatments. They also perceived PBL in positive ways in enhancing their problem solving skills. However, their motivation did not change much, thus contributed to insignificant results. Finally, in investigating the relationship among motivation, and perceptions towards learning environment, with

problem solving skills, results showed that only motivation associated with problem solving skills.

In summary, this study demonstrates that students can enhance their problem solving skills through problem-based learning as one of instructional approaches in class as proposed by Ministry of Higher Education. Using this approach, the findings of this study are able to provide fresh ideas for teaching and learning in undergraduates' courses by preparing syllabus which integrates the content knowledge and the requirements of industry.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**MEMPERMANTAPKAN KEMAHIRAN PENYELESAIAN MASALAH
PELAJAR MELALUI PEMBELAJARAN BERASASKAN MASALAH
SEBAGAI SATU PENDEKATAN PENGAJARAN KOMUNIKASI**

Oleh

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Graduan Malaysia didapati tidak memenuhi kriteria yang diperlukan bagi menjadi seorang pekerja yang baik kerana mereka kurang cekap di tempat kerja dan kurangnya kemahiran insaniah. Salah satu sebab mengapa graduan kita tidak memenuhi keperluan industri adalah disebabkan oleh lemahnya kemahiran menyelesaikan masalah, di mana ia merupakan salah satu aspek penting kemahiran insaniah. Untuk menangani isu ini, Kementerian Pengajian Tinggi telah mencadangkan beberapa pendekatan pengajaran yang boleh digunakan di dalam kelas, dan salah satu daripada pendekatan tersebut ialah pengajaran berasaskan masalah.

Kajian ini telah direka untuk meneliti aplikasi pembelajaran berasaskan masalah sebagai pengajaran komunikasi di dalam kelas, yang dipercayai dapat membantu pelajar dalam meningkatkan kemahiran menyelesaikan

masalah mereka. Satu kajian kuasi-eksperimen telah dilakukan dalam menyiasat keberkesanan Pembelajaran Berasaskan Masalah (PBL) sebagai satu pendekatan dalam pengajaran. Dua kumpulan pelajar telah dipilih sebagai subjek kajian ini; kumpulan PBL dan kumpulan bukan PBL. Kemahiran menyelesaikan masalah subjek dinilai pada awal dan akhir semester. Bagi kumpulan PBL, persepsi mereka terhadap persekitaran pembelajaran PBL dan motivasi intrinsik mereka telah diukur sebelum dan selepas menerima tugas PBL.

Kemahiran menyelesaikan masalah dan tugas PBL pelajar diukur dari aspek “ketepatan” dan “kualiti” oleh penilai-penilai yang dipilih. “Ketepatan” dan “kualiti” tersebut diukur menggunakan rubrik yang digunapakai dalam peperiksaan MUET (Malaysian University English Test). Beberapa soalan telah dipilih daripada “Motivated Strategies for Learning Questionnaire” oleh Pintrich and DeGroot (1990) dan “Problem-based Learning Environment” oleh Senocak (2009) dalam mengukur motivasi intrinsik dan persepsi pelajar terhadap persekitaran pembelajaran PBL. Tambahan pula, dalam menilai keberkesanan PBL, kajian ini menggunakan Teori Pembangunan Sosial oleh Vygotsky dan Model Penghujahan Toulmin.

Dapatan kajian menunjukkan bahawa terdapat perbezaan yang signifikan terhadap kemahiran penyelesaian masalah bagi pelajar dalam kumpulan PBL berbanding dengan pelajar dalam kumpulan bukan PBL. Terdapat peningkatan dalam kemahiran menyelesaikan masalah bagi pelajar dalam kumpulan PBL setelah menjalani empat tugas PBL. Mereka juga melihat

PBL sebagai sesuatu yang positif dalam meningkatkan kemahiran penyelesaian masalah mereka. Walau bagaimanapun, motivasi mereka tidak banyak berubah, sekali gus menyumbang kepada keputusan yang tidak signifikan. Akhirnya, dalam melihat hubungan antara motivasi, dan persepsi terhadap suasana pembelajaran, dengan kemahiran menyelesaikan masalah, dapatan kajian menunjukkan ada perkaitan antara motivasi dengan kemahiran menyelesaikan masalah.

Secara ringkasnya, kajian ini membuktikan bahawa pelajar boleh meningkatkan kemahiran menyelesaikan masalah mereka melalui pembelajaran berasaskan masalah sebagai salah satu pendekatan pengajaran di dalam kelas seperti yang dicadangkan oleh Kementerian Pengajian Tinggi. Dapatan kajian ini dapat memberi idea-idea baru dalam proses pengajaran dan pembelajaran untuk kursus-kursus peringkat pengajian tinggi dengan menyediakan sukatan pelajaran yang mengintegrasikan pengetahuan dan keperluan industri.

ACKNOWLEDGEMENTS

Alhamdulillah, all praise be upon the Most Benevolent and Most Merciful for without His blessings, this study would never have been started and completed successfully. Here I would like to acknowledge all those who were instrumental in supporting, guiding, encouraging and praying for me in the duration of my study from the beginning to the end.

Firstly, I would like to thank my chairperson, Professor Dr Ezhar bin Tamam; he has placed his confidence and faith in me despite the fact that I was inexperienced in research at the time I enrolled as a PhD student. Together with two wonderful and helpful lecturers to assist me: Dr Jusang Bolong and Dr Mohd Nizam Bin Osman; their contributions toward my research were enormous. Not forget, my colleague, Dr Berhannudin Mohd Salleh, who is expert in PBL; thank you very much for the ideas.

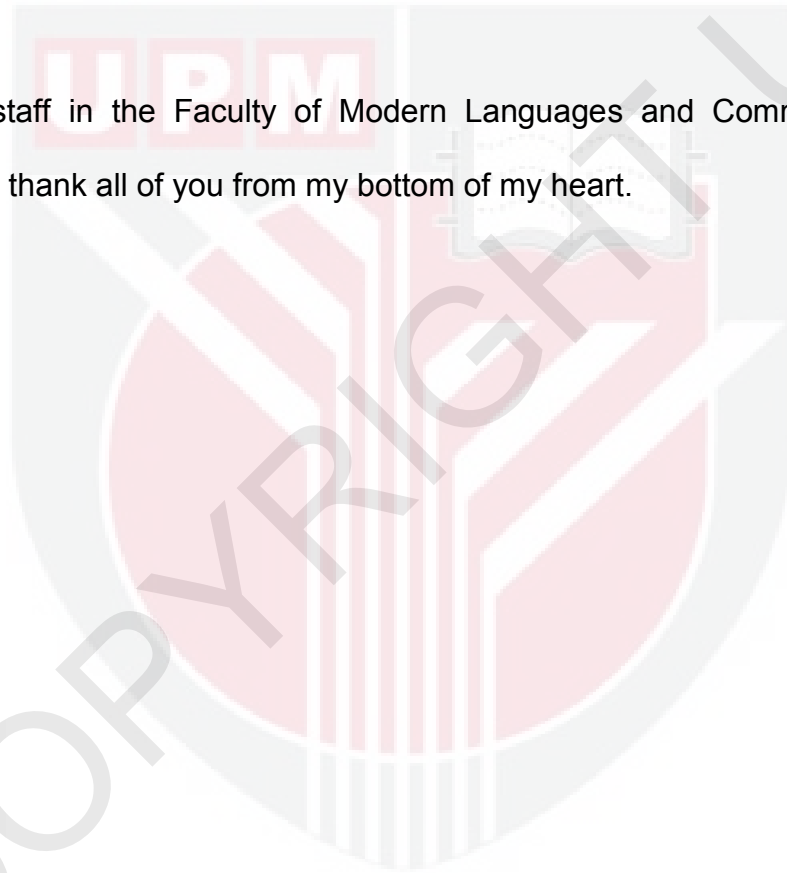
My thanks also are due to the Universiti Tun Hussein Onn Malaysia (UTHM) and the Ministry of Higher Learning Education of Malaysia (MOHE) who provided four years PhD study leave and scholarship. Thanks also to PPKK staff and currently known as FSTPi. Your help is really appreciated. Special thanks also to all my respondents who participated in this research.

Next, I thank my husband, Sahidin Mohd Sahid, and my daughters, Amirah Iman and Afrina Iffah; my mother, Hjh Mariam binti Musa, as well as my siblings; because of your patience and encouragement, I have been

motivated to work harder and not to give up in the face of countless challenges.

Special to my classmate@schoolmate@colleague, Along, you served as my pillar. From the moment I informed you that I wanted to further my study, you put your faith in me. You spend your precious time with me, after 5, and even weekend... thank you very much.

To the staff in the Faculty of Modern Languages and Communication, I sincerely thank all of you from my bottom of my heart.





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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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