UNIVERSITI PUTRA MALAYSIA

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

ZULIDA BINTI ABDUL KADIR

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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

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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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July 2013

Chair: Ezhar bin Tamam, PhD

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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

ZULIDA BINTI ABDUL KADIR

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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 tugasan PBL.


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 sukaan pelajaran yang mengintegrasikan pengetahuan dan keperluan industri.
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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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Declaration by graduate student

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