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NR007 Developing an interactive learning curriculum of real estate courses in Malaysia
– the applications of the problem based learning concepts

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Abstract

As the world undergoes changes under the influence of globalisation, graduates that enter the job market are now faced with a new set of challenges in order to compete competitively for the best jobs in the ever-changing organisations that suits their competencies. Universities that traditionally play the role of disseminating knowledge need to reexamine their role to prepare their graduates in facing the new set of requirements. University of Malaya in the move to improve student's abilities to think and communicate effectively has introduced and initiated the implementation of problem-based learning (PBL). It is a student centred method where students learn by working on real time problems and activities with the teachers, as facilitators. The implementation of problem-based learning is acknowledged due to the attractiveness of a high numerical efficiency in the PBL programme in the medical curriculum.

The paper explores the possible adoption of the approach in the real estate courses curriculum highlighting the possible areas of benefits and concerns in its implementation drawing the experiences from others. It further describes the experience in the introduction and implementation of problem based learning (PBL) for two batches of students in the Estate Management Degree programmes at the Faculty of the Built Environment , University of Malaya

Keywords: adoption of PBL, implementation, student centred approach.

Introduction

“The success of a high learning institution can be measured from the quality of the graduates that it produces. Possessing a degree does not guarantee a graduate in securing a job as employers will choose the graduates with the relevant knowledge and skills. As such, the institution of higher learning must adopt the correct approach to instill the soft skills amongst graduates. The soft skills include ability to communicate, language proficiency, ability to think critically, the ability to solve problems, working in a team, have entrepreneurship skills, leadership and high moral and ethical values.” (Dato Mustapha Mohamed, the Minister of Higher Education, Malaysia, 2006, Soft Skills Module for the Institutions of Higher Learning, Malaysia, University of Putra Malaysia).

In responding to the severe pressure to ensure graduates possess attributes including the soft skills that are demanded by the market place not only in Malaysia as well as in the global market, universities in Malaysia are required to examine again the learning outcomes of the offered programmes, approaches of the learning and its delivery. One of the common student centred learning approaches that has been adopted to meet the above objective of preparing its graduates for the job market at the University of Malaya is Problem Based Learning (PBL). This approach has been actively adopted at the Faculty of Medicine, University of Malaya drawing from experiences of medical faculties in other countries. In 2001, a top down approach embedded in the policy statements of the University’s management had teaching staff thinking to include methods, which recognizes students’ cognitive abilities and skills. This is to include a learning method that combines the technique of active learning, cooperative learning, experiential learning, contextual learning, constructive learning and inquiry learning which can be called as inter active learning (Salimah, M., Zaitun A.B, 2004)

PBL is one of the learning approaches adopted widely in a variety of studies, ranging from medicine and architecture, law, economics, business administration and engineering. All PBL approaches share some basic principles, partly didactic and partly related to their professional orientations. The principles include active acquisition of knowledge and skills; students are responsible for their own learning, cooperation rather than competition, holistic orientation towards professional practice, integration of knowledge from different domains and integration of knowledge, skills and attitudes.

The specific format varies from one application to another. In some case, the traditional lecture format is completely eliminated. In other case, lectures are employed next to problems, as one to challenge students. Although group learning is not essential to PBL, in most established PBL courses learning is characteristically enhanced by small group work, where students cooperate in defining their own learning objectives. Group discussions about practice problems activate prior knowledge and learning is crosslinked with existing knowledge, fostering the development of a thinking structure that is relevant to practice. Students work in small groups and it is generally accepted that the staff members guide the group work as facilitators rather than teaching their expert knowledge.

Development of Learning Outcome and Required Skills of Graduates

In achieving the identified soft skills to be included in the curriculum of programmes at the higher institutions of higher learning in Malaysia, the Ministry of Higher Education, Malaysia have indicated that different learning approaches should be adopted. Teaching & learning activities should be focused on achieving the main domains of learning outcomes, which include cognitive, psychomotor and affective as identified by Benjamin S. Bloom. According to Bloom (1956), within each domain are different levels of learning, with higher levels considered more complex and closer to complete mastery of the subject matter. A lot of emphasis has been given to the cognitive and psychomotor domains thus it has been identified that the affective and social domains have not been fully developed. Skills in the cognitive domain revolve around knowledge, and comprehension. Traditional education tends to emphasise the skills in this domain, which consists of six levels in the taxonomy, which include knowledge, comprehension, application, analysis, syntheses and evaluation. Skills in the psychomotor domain describe the ability to physically manipulate a tool or instrument and its objectives usually focus on change and development in behavior and/or skills. Skills in the affective domain describe the way people react emotionally and their ability to express feelings. Affective objectives typically target awareness and growth in attitudes, emotions and feelings. There are five levels in the affective domain that include receiving, responding, valuing, organizing and characterizing.

The Malaysian Qualification Framework developed by the Ministry of Higher Education in 2006 has identified the learning outcomes of programmes which would satisfies the relevant stakeholders within the industry to be the ones illustrated in Figure 1.

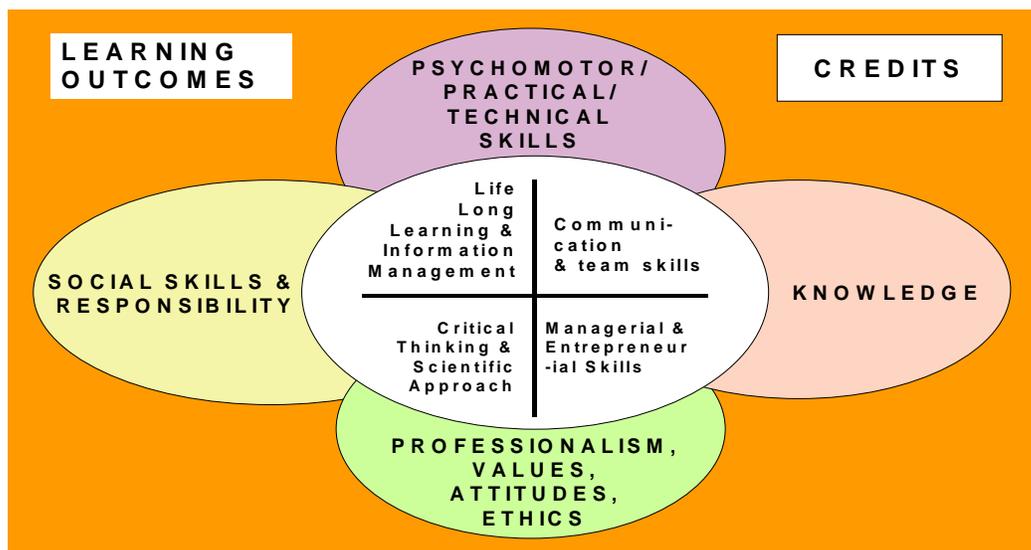


Figure 1 – The Learning Outcomes of Programmes (Malaysian Qualification Framework, Malaysia Qualification Agency, Ministry of Higher Education, 2006).

At the end of a programme, competencies that students should demonstrate should include body of knowledge, practical skills, social responsiveness and responsibility,

ethics and professionalism, scientific methods, critical thinking and problem solving, communication skills and team work, management and life long learning, entrepreneurship and management. The balance in developing curriculum can be achieved by ensuring the objective; synopsis, course contents and the assessment are in line with the learning outcome that is to be achieved. This can be illustrated as in Figure 2.

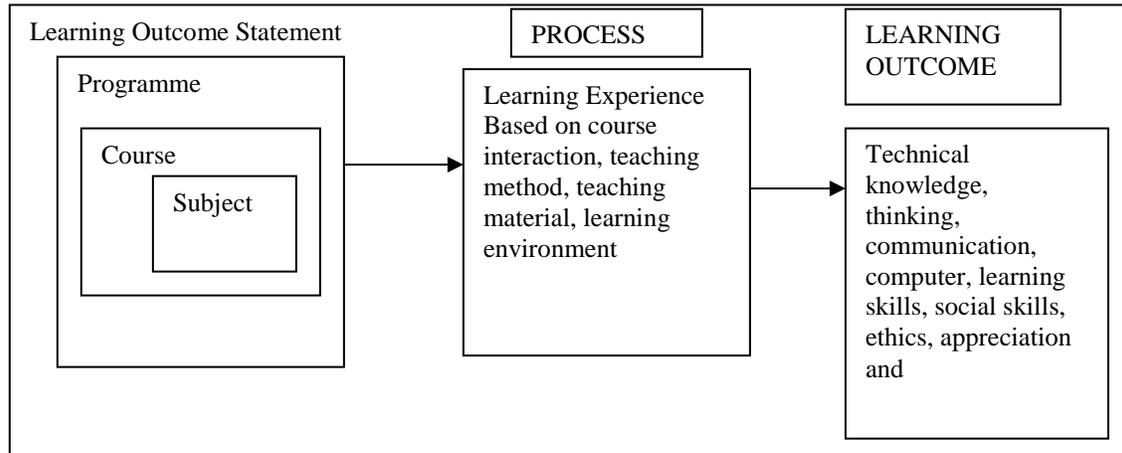


Figure 2 – Relationship of Learning Outcome at every level and the end product after the learning and teaching process (Soft Skills Module for the Institutions of Higher Learning, Malaysia, University of Putra Malaysia, 2006).

In coming up with the graduate attributes for a changing world, the Institute for Teaching and Learning, the University of Sydney (Barrie S., 2005) have identified the attributes as the quality skills and understandings that a university community agrees its students should develop during their time with the institution and consequently shape the contribution and they are able to make to their profession and society. Graduates should be enterprising and employable and exhibit skills that global capital recognises. They must have attributes of worker flexibility (the ability to work as an individual or in teams based situations and hold attributes of self-responsibility towards up-skilling and re-skilling), have personal and transferable skills (highly developed communication skills and problem solving, be computer literate). In a survey on the top ten qualities that employers seek by the National Association of Colleges and Employers, OIPR Senior Survey 2001, De Paul University, UK Survey 2002, the qualities described include communication skills, honesty/integrity, teamwork skills, interpersonal skills, strong work ethic, motivation/initiative, flexibility/adaptability, analytical skills, computer skills and organisational skills.

Ranjit Singh Mahli (2005) in recognising the changing workplace of the 21st century has defined the graduates' generic competencies as competencies that are valued across all fields and organisations, regardless of position or title. There are also essential for effective performance in a broad range of jobs and portable across workplaces. The generic competencies are also known as employability skills or transferable skills. By referring to the expected skills and attributes of graduates as provided by a few

universities in Australia, he has developed a model of generic competencies required by Malaysian graduates as illustrated in Figure 3.

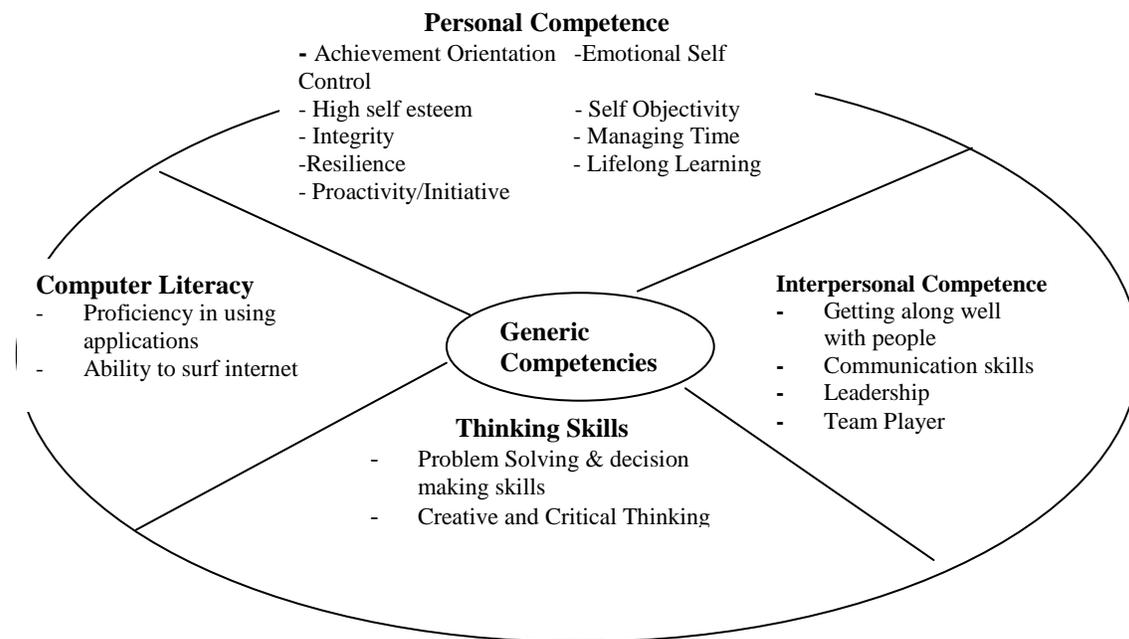


Figure 3 : Generic Competencies Required by Malaysian Graduates (Ranjit SM, 2005)

It can be observed that the qualities expected of university graduates are no longer the ones that only emphasis the key area of knowledge and skills of a particular study area. Additional skills namely the soft skills covering the personal, interpersonal, thinking and literacy attributes are becoming important and crucial to graduates in facing the challenges of the global job market.

Boyd (2005) outlined five changes that should greatly improve the learning environment for real estate/property students. They are:

- Quality interaction between academics and students: class presentations, group work, workshop facilitation, one-to-one consultation
- Industry linked learning: practitioner involvement, academics presenting workplace courses, joint consultancy, joint research
- Emotional intelligence development: development of self-esteem and mental agility, becoming positive, adaptable and supportive of one another
- Integrated, problem based workshops
- Online learning: case study development, flexibility

In view of the demands of the job market and with particular regards to the ones related to the real estate sector, PBL can be seen to play the role of filling in the gap of producing the much-sought graduates able to meet these sophisticated demands of the market and industry. In considering these demands, thus PBL can be taken as another learning approach in learning process of the real estate programmes at the higher learning institutions in Malaysia.

Factors of Consideration for the Implementation of PBL for Real Estate Courses

In meeting the required skills that are desirable to society, the process requires the use of teaching learning and assessment methods that will enable students to acquire a range of competencies, which requires them to participate in the education process. Important teaching-learning methods include self-directed learning, use of information technology and the diversity of other added on subjects, as electives will assist the students' learning experiences.

Norman and Schimdt (1992) wrote that there is evidence to suggest that PBL enhances: transfer of concepts to new problems, integration of concepts, and intrinsic interest in learning, self-directed learning and learning skills. Meta-analysis of literature on PBL in medical education by Albanese and Mitchell (1993) revealed that PBL helps students in the construction of knowledge and reasoning skills compared with the traditional teaching approach. It has been noted that several technological universities in Europe with strong links to industry have actually adopted PBL approaches without explicitly emphasizing the approach. Problems have become the starting point of the engineering and medicine curricula at Aalborg University, Denmark and University of Maastricht, Netherlands for example (Moesby E & Rosenorn, T (2002). Barret T (2005) has identified the research evidence about success factors in PBL implementation to be as follows: philosophical factors, design factors, PBL tutoring factors, staff and student induction factors and management. As summarized by the literature drawn (Tan, 2003), the main factors that are beneficially acceptable in relation to the implementation of PBL in meeting the 21st century needs in education include harnessing intelligences from within individuals, from groups of people and from the environment to solve problems that are meaningful, relevant and contextualized.

Taking the above considerations, the implementation of the PBL approach at the Department of Estate Management, Faculty of Built Environment, University of Malaya was a move to enhance the learning process having to take into consideration of the following main non-physical areas of concerns. Initial concerns were shared with several faculties in the University of Malaya during the implementation stage, which include large number of students, inexperience lecturers, quality of PBL cases, inadequate infrastructure, students' acceptance and perception of PBL (Salimah M., Zaitun A.B (2003), (Tho, Lai Mooi, Ng Kok Thye, Ahmad Zahiruddin (2003)). Limitation of fully integrated PBL approach identified by Barrows and Tamblyn (1980) are the increased demand on resources related to the problem being examined if there are a large number of students as well as staff are often consumed about their potential knowledge base.

Therefore, it can be concluded that the areas of concerns can be mainly divided into four main areas, which are related to: students, facilitators, generating good problems/cases as well as making fair assessment.

Issues related to facilitators - Transition from teacher centered & lectured orientated system, changing roles of academic staff to facilitate rather than teach within their interest and experience, dealing with interdisciplinary projects from non-exposed backgrounds, how to deal with group dynamics, transforming lecture course to small

grouped course, understanding the principles of interdisciplinary education, undertake appropriate assessment and evaluation strategies

Issues related to students - Diverse family background of students, different race – multi racial, different education background, different intelligent and emotional quotients, and differences in sexes – female dominating class, group dynamics and non-independent learning and large number of students in traditional classroom teaching

Issues related to generating good problems/cases - Constructing a good problem to be solved can be time consuming ; which may want to cover : ill defined and messy structure with real life situation, underlined concepts and skills, interaction between students and teachers and amongst each other, open ended concept and an opportunity for independent work and research, be complex and replicate professional practice situations so students can apply previous concepts and knowledge and acquire new knowledge

Issues related to assessment - Non-bias judgement, well-rounded and covered aspects for assessment, non-judgmental opinions and acceptance of solutions to problems posed. Despite the issues mentioned, the outcome of using the PBL approach could not be monitored if the initiation and application is not being considered. Since the main benefits that can be reaped from the PBL approach have been highlighted to benefit students especially in developing learning skills, the Department of Estate Management, Faculty of Built Environment, University of Malaya has decided to initiate the usage of the PBL approach gradually since 2003 (Y M Adnan, N H, Ishak, 2004).

Description and Implementation of PBL Approach

The PBL Approach was introduced to Department of Estate Management's second year students in the Bachelor of Estate Management programme in 2003. The course selected was a course known as 'Integrated Project', a core course of 4 credit hours (Table 1). It has been a traditionally a 100% project based coursework from which students are required to present verbal and written reports. Comparison is made to the two recent cohorts of students of the programme towards the adoption of PBL in the selected course.

Course Code and Title	Level	Credit Hours	Number of Students	Mode of Assessment
BMEM2181-Integrated Project	Second Year undergraduate programme (core course) - Special Semester of 7 weeks	4	Intake 2004/2005) – 45 students Intake 2005/2006) – 53 students	a) Individual Presentation – 60 % + Group Presentation – 40% b) Report 1 – 100% c) Report 2 – 100% Final Assessment : Average of a+b+c

Table 1: Course Description

The students were given problems related to the valuation and management of a multi storey commercial building as well as deciding on the best development for consideration on selected vacant sites identified in a local town area. At the end of the course, the students are expected to prepare reports and present the findings in a corporate presentation sessions following a site visit normally conducted out of campus. Subjects covered in the report amongst others include valuation, town planning, law, marketing and economics. Information and documentation were collected from various

organisations involved in the course work. The students, which were divided into permanent groups, were selected in accordance to the gender, race, academic performance as well as the personality attributes known to the facilitators. Out of the 45 students and 53 students for sessions 2004/2005 and 2005/2006, female students comprising 65% and 66% respectively dominated the class. The students work in teams to find solutions from the problems posed. This is to allow students to explore finding solutions from different viewpoints. The major task of ensuring maximum beneficial output from each of the group proved to be a challenged experience for the facilitators. Problems were posed at the beginning of the session and students & facilitators were briefed on the requirements of the course. After each site investigations during the one-week visit outside campus, students are required to explore the different context of the subject matter from which discussion meetings were held in the night session of the site visits. Facilitators were required to listen and guide the students whenever necessary. The students were later requested to follow through with group meetings from which each meeting session is recorded and request for facilitators' assistance must be made in advance before any meetings.

Evaluation of the PBL Approach by Students

At the end of each of the session course, questionnaires were distributed to seek feedback from students on the learning experiences they encountered. The response rate from the two cohort of students was 88% and 85% respectively. The emphasis was to find out students responses on the following areas of concerns, which focused on main aspects of PBL covering learning skills, groups' dynamics and facilitator's role. The questions were directed to find students view as opposed to lecturer's, which will be made in future studies.

1. Learning skills

Amongst the questions posed were directed to find out whether PBL approach has assisted students to learn how to obtain information from a variety of sources, makes them a better thinker, seeing how the different subjects are related to one another, to be more resourceful, improvement in the abilities to find, read and information as well as increasing their communication skills.

Responses given by students are as follows:

The course has helped them:	Ratings					
	Strongly Agree & Agree		Not Sure		Strongly Disagree & Disagree	
	04/05	05/06	04/05	05/06	04/05	05/06
	n=40	N=45	n=40	N=45	n=40	N=45
· Obtain information from a variety of sources	87.5%	88%	10%	12%	2.5%	0
· Makes them better thinker	92.5%	88%	2.5%	12%	5%	0

· Increase communication skills	67.5%	87%	27.5%	13%	5%	0
· Help to see how different subjects taught in the programme are related to each other	62.5%	93%	30.0%	7%	7.5%	0
· To be more resourceful	80%	88%	20%	12%	-	0
· Prepare ability to find, read and analyse information	90%	91%	2.5%	9%	7.5%	0

Source: Yasmin Mohd Adnan (2006)

It can be said that the students agree that the PBL approach had developed the learning skills and acknowledge attributes of the learning skills in which the majority of the students agreed to the questions posed. There were similar level of acceptance to the learning skills for the two batches with the exception to a lower level of agreement by batch 2004/2005 to the question posed on how PBL has helped to see how different subjects taught are related to each other and how PBL has increased communication skills.

2. Group Dynamics

As working in permanent groups from which is set by the course facilitators being experienced by the students throughout the course, students are asked of the group dynamics aspects so as to discover the output from those students on aspects of working collaborative. They are asked on whether they are comfortable working in groups, comfortable asking help from others in the group, groups members listen to each other when information are presented, comfortable at sharing information, roles of chairperson and secretary at meetings are competently filled. Questions are also asked on how each member get along with each other, commitment of each group member to accomplish shared goals, each group member clearly understand the role each member is suppose to play, the skills of each group member are fully utilised, the group can resolve conflicts and whether each member respect, value, support and encourage each other.

Group's Dynamics- Students are asked whether they are	Ratings					
	Strongly Agree & Agree		Not Sure		Strongly Disagree & Disagree	
	04/05	05/06	04/05	05/06	04/05	05/06
	n=40	n=45	n=40	n=45	n=40	n=45
· Comfortable working in assigned groups	82.50%	82%	15%	15%	2.50%	3%
· Comfortable asking for help from others	85%	78%	10%	20%	5%	2%
· Listen when members present information	87.5%	86%	12.5%	14%	-	0

· Comfortable sharing information with others	92.5%	89%	5%	7%	2.5%	4%
· Roles of chairperson and secretary competently filled	85%	86%	12.5%	9%	2.5%	5%
· Group members get along with each other	85%	82%	5%	13%	10%	5%
· Group members are committed to accomplish shared goals	87.5%	86%	7.5%	13%	5%	1%
· Each member understand the role to be played	80%	84%	17.5%	11%	2.5%	5%
· Skills of group members are fully utilised	77.5%	84%	15%	13%	7.5%	3%
· Groups resolve conflicts	87.5%	82%	10%	18%	2.5%	0
· Group members respect, value, support and encourage each other	87.5%	84%	10%	11%	4%	5%

Source: Yasmin Mohd Adnan (2006)

The life cycle of a group such as in the formation, norming, storming and performing stages needs to be understood (Gerhardt C, 2002). Monitoring group collaboration is a major task for the facilitators as it has never been easy to handle as the facilitator is faced with diverse matters for consideration. Attention needs to be given to factors, which influence the group dynamics of students at the tertiary level such as different ethnic and educational well as family upbringing and others. The facilitators range from being a teacher to parents and make the necessary transition so as to be an authoritarian on one part and laissez faire on another. They need to intervene in the collaboration process whenever necessary by giving positive connotations and provide consultations on certain behaviour to a certain extent. It has been observed that although a majority of students can work collaboratively in a group, they are sometimes challenged by behaviors of some of the minority members who may not be contributing to the tasks. Thus there may instances where some students do not get along with other members in the group but the facilitator has to play the role of ensuring the success of the group. The two batches of students have indicated similarly high level of agreement to the questions posed on group dynamics.

3. Facilitator's Role

Students were asked on how the facilitator guides and intervenes when necessary to keep them on track as well as whether the facilitator listens and responds to the students concerns and problems.

Facilitators' Role	Ratings					
	Strongly Agree & Agree		Not Sure		Strongly Disagree & Disagree	
	04/05	05/06	04/05	05/06	04/05	05/06
	n=40	N=45	n=40	N=45	n=40	N=45
· Facilitator guides and intervenes when necessary to keep group on track	87.5%	88%	12.5%	10%	0	2%
· Facilitator listens and responds well to student concerns & problems	95%	90%	2.5%	10%	2.5%	0

Source: Yasmin Mohd Adnan (2006)

Concerns have always been raised on whether students learn enough facts. In PBL however, the teacher needs a new sets of skills which include stimulating and guiding students as they make sense of information and experience by designing appropriate activities, observing learners at work and guiding their progress through questioning and feedback. These new skills can only be achieved through the acceptance of the philosophy of PBL and further training of conducting the approach. It can be noted that it has always been a challenge to academic staff to convert from the traditional role of teaching to become a facilitating medium. It has always been viewed that efficient and effective knowledge transmit from teacher to learner and the teacher has always been in control of the content, teaching approach and assessment. It can be noted that a given number of students of the two batches were rather unsure and disagreed to a certain extent to the appropriate roles by the facilitator though a majority of students concurred to that the facilitators played the role required.

Conclusion

In preparing the real estate graduates for the job market, the curriculum of the real estate programmes in Malaysia should be developed to include the identified soft skills by the Ministry of Higher Education. The process of implementation has to adopt the appropriate teaching and learning approaches and Problem Based Learning (PBL) can be one of the methods that can be adopted in the curriculum design so as create an interactive and problem solving learning environment. The implementation of the courses adopting the PBL approach for the real estate courses is recommended within the context of achieving the objectives of developing graduates within the real estate programmes to assimilate the success of the other disciplines and schools so as to cater for the demand of the industry. Though it has been noted through literature of the beneficially factors for consideration in the implementation of PBL to be ones that encourages the positive attributes of students' learning through better skill development, the issues related to the implementation must be tackled accordingly to produce effective results. These issues can be divided into four main areas of concerns relating to the non physical aspects of the resources available for teaching and learning which are namely related to students, facilitators, generating good problems and designing a fair assessment system. Through the implementation a course for the second year students at the Department of Estate

Management, Faculty of Built Environment, University of Malaya, it has been noted of the beneficial outcomes at the end of the course. The identified two batches of students who participated in the PBL approach and in which the feedback were sought gave favourable responses. However, in developing the curriculum of real estate programmes in Malaysia requires prior examination and planning so as to include the relevant learning outcomes with the required soft skills accepted by the industry. The areas of concerns should be addressed with the relevant human, financial and physical resources support from stakeholders. Understanding the PBL philosophy and its approaches by those who wish to be involved in the learning process are essential especially during the implementation and facilitation stage.

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