The Analysis of Benefits, Importance and Effectiveness of Problem-Based Learning (PBL) in Business Education

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Abstract: The review essentially proposed that students had a positive impression of the implementation of PBL. The implementation of this learning approach is also useful for the developmental of learning and students' learning skills. PBL would be an efficient and reliable manner when it is successful to create the confidence of students to learn in isolation and a connecting and path to students to experience closer to the reality in real life. Educational practitioners and pioneering for curriculum development stress on the importance of providing the student with a good design of issues and a dynamic build of PBL curriculum. Effective implementation of this approach plays an important role for understanding the problem solutions and the facilitator as well as student. In addition, to ensure the success of PBL, the lecturer or facilitator engaged in the conducting PBL should also have the skills and competency including the ability to identify, articulate and to access various skills such as questioning skills, skills to manage and control the dynamics of group, strengths and passion for success, facilitating meta cognitive aspects (such as teaching students how to become more aware of their learning processes and products as well as how to regulate those processes for more effective learning and it requires the ability to use higher order thinking skills such as analysis, synthesis, evaluation and creation of new knowledge).

Key words: Problem-based learning · Benefit · Effectiveness · Thinking skill · Business education

INTRODUCTION

What Is PBL and What Benefits Might Be Expected?:
In the traditional curriculum, teacher's role was transmitting information to the students and students passively listened and acquired the fact. But in current redevelopment, the focus of instruction has altered from teacher-centred to the student-centred in this new perspective which is called Problem-Based Learning (PBL) [1]. PBL is not a new phenomenon. According to Boud and Feletti [2], PBL is a methodology that was used before the formal classroom concepts are introduced. PBL curriculum as a core in this research was introduced by Howard Barrows (medical education programmes, McMaster University, Canada) in the early 1969. The origin of PBL can be traced to the progressive movement, especially to John Dewey's [3] belief that teachers should teach by appealing to the students' natural instincts to investigate and create. This learning approach has spread to medical schools in North America, Europe and Australia in the early 1980's and has been adopted by schools of engineering, architecture, social work, law, nursing and among others [4].

According to the McMaster model [5], the concept of the PBL method involves three phases which are:

• Revealing the problem scenarios,
• Finding information and
• Discussion and new knowledge application to the problems.

The PBL method stresses that problem solving activities are a style to gain and to apply knowledge [5]. It is becoming an increasingly popular term in tertiary education and was first applied in business schools [6], as more and more educational disciplines implement the

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teaching and learning approach associated with the terminology, previously believed to be monopolised by medical schools. This learning approach applies widely to learning in most professional schools and disciplines. In fact, some argue that it is the most significant innovation since the move of professional training into educational institutions [4].

According to Barrows and Tamblyn [5], PBL is defined as the learning that results from the process of working towards the understanding or resolution of a problem. On the whole, Business Education programs normally use the traditional business curriculum structure produce one tier teaching method which is the traditional teacher-centred approach such as lectures and tutorials. The knowledge of business subjects is disseminated via lectures in business coursework classes. Instructors periodically give lectures and by the end of a study session or semester, the assessment of students' performance is made, mainly based on examination. Barrows and Tamblyn [5] regard this as an important step in which students recall what they already know about a topic, to give them a context for learning [7, 8]. The current Business Education system has seen some variations in modes of performance assessment of business coursework. This is usually limited to case study, report submission and presentations which do not depart from teacher-centred approach.

In the PBL approach, according to Flint [9], typically 5-8 students work together in a group. Active discussion and analysis of problems among students enable them to: learn from each other; apply content knowledge to a practical real world problem; learn and practise both individual and group communication skills; evaluate the learning and discovery process they used to achieve their goals and solve the problem. According to Alavi [10], this approach aims to develop a creative and critical approach to learning; the use of knowledge where students are encouraged to utilise information from diverse sources; the use of initiative in information gathering and skills in critically evaluating all information and the sources of it. Based on Biley [11], PBL aims to develop critical thought, analytical ability and synthesis of knowledge and skills by re-evaluating knowledge and understanding throughout the problem-solving process.

The Characteristics of PBL: The main characteristics of PBL as based on Barrows [12] provide the teacher with a checklist of features to be designed into courses. These characteristics are:

Student centred: The students are motivated to be responsible for self-learning. The teacher will act as a facilitator and will help students to make a right decision. This is in line with Margetson's [13] (p. 45) view of one of the characteristics of PBL. She states that PBL is morally defensible as it pays due respect to both student and teacher as persons with knowledge, understanding, feelings and interests who come together in a shared educational process;

Problem based: The problem to be used is an ill-structured problem, e.g. a problem in the real world. Enough information will be given to stimulate thinking processes in the students' memory and this will involve inductive and horizontal reasoning and deductive and vertical reasoning to generate hypothesis. The student works with the problem in a manner that permits his/her ability to reason and apply knowledge to be challenged and evaluated, appropriate to his/her level of learning. Students will face an inquiry learning when the problem is designed [12] (p. 4). In addition, the problem should lead students to discover that there may be a number of solutions [14] (p. 24). In line with the definition of PBL outlined by Boud and Feletti [2], Savery and Duffy [15] and Camp [16] that *learning is an active and engaged process* - anchor instruction and situated learning support this learning theories. Anchored instruction is a form of a macro-context-based instructional framework for actively engaging students in realistic complex problem solving, reflection, transfer and critical thinking (CT) activities. Anchored instruction is most closely related to the goal-based scenario model. While anchored instruction may also resemble PBL, it is less open-ended. In line with comment above, Margetson [13] (p. 45) also share the same view with her view of another PBL characteristic that it *encourages open-minded, reflective, critical and active learning*;

Problem solving: A problem will be used to stimulate effective, efficient development and reasoning skills. PBL works best by using a problem solving framework that includes: interpreting and defining the problem; generating questions that need to be answered about the problem; conducting research to find answers to the questions; proposing a variety of hypothesis and potential problem solutions that are warranted by the data collected; discussing the pros and cons of these potential solutions; selecting and presenting potential problem solutions to a real audience. The teachers will guide the

students at meta-cognitive level. At the early stage, there will be a modelling of the problem solving process and teachers will reduce their role when students start to communicate and make argument with themselves and peers about what they think (p. 4). This feature stated by Barrows is similar to the view of Boud and Feletti [2] Savery and Duffy [15] and also Camp [16] which state that *students will act as meta-cognitive* while their learning will be focused to solve the thinking skills. In order to solve the problems, the students will need to stimulate their self-strategy. The next features of PBL as related by Barrows [12] are;

Self directed: Students can justify what they must learn and this is based on their task to solve the problem [12] (p. 5);

Reiterative: When students are finished with self-directed learning (such as search of information needed to solve the problem) they will go back to the problems and will apply a new knowledge that they gain through problem solving. The experience that they gain will be used to construct new knowledge. This is similar to the view of Savery and Duffy [15] that PBL is consistent with the principles of constructivism which emphasize that knowledge is constructed through experience. According to Savery and Duffy [15], the three primary constructivist principles are that understanding comes from our interactions with our environment, cognitive conflict stimulates learning and knowledge evolves through social negotiation and evaluation of the viability of individual understandings;

Collaborative: Students will collaborate in the problem solving process and will identify learning issues. The student collaboration will occur during self-directed learning when students form a group to solve the learning issue which has been identified [12] (p. 5). This feature is similar to the view of Boud and Feletti [2] and Savery and Duffy [15], also Camp [16] who stated that; *'learning will involve the social deals'*. The PBL process required group collaborative. The students' thinking, beliefs, perceptions and self-knowledge will be challenged when they collaborate with other students and this will stimulate cognitive process development.

Other features of PBL as stated by Barrows [12] are:

Self reflecting: When the problem is solved, students will make a self-reflection to the new information, compare it with the new problem, make a reflection to face the same problem (for the future), to abstract a concept or a

principle and draw a mind map to show the connection of problem elements and connection of the reason [12] (p. 5). Reflection helps students relate their new knowledge to their prior understanding; mindfully abstract knowledge; and understand how their learning and problem solving strategies might be reapplied.

Self monitoring: Students will monitor, evaluate the progress and self-achievement. Self-evaluation will be in the form of teacher response, peer group and other evaluation [12] (p. 5). This is similar to another of the PBL characteristics outlined by Margetson [13] (p. 45), she stated that PBL *reflects the nature of knowledge* which is complex and changes as a result of responses by communities of persons to problems they perceive in their worlds and;

Authentic: All the required learning behaviour in PBL includes all the required steps by students and it will be evaluated in real world situation [12] (p. 5).

The features of the learning environment in a PBL curriculum stand out as typical in normative texts about PBL and are regarded as essential for enhancing student learning [4, 12, 13, 15, 16]. The features of PBL, as an educational practice will be the same regardless of the subject matter or area. A possible conclusion is that since PBL is a flexible way of organizing teaching and learning, there are possibilities for different academic cultures to shape PBL according to their own needs and traditions and to their inherent perspective of learning. As such, the implementation of PBL does not necessarily mean a new way of thinking about teaching and learning. The academic disciplines are powerful forces in the articulation, maintenance and reproduction of the perspectives, values and beliefs embedded in their cultures. The features identified by Barrows [12] also can be helpful in making teaching decisions that support the nature of the content and the range of students.

In the PBL curriculum there are five phases which must be implemented by the students:

Phase 1: Define and Analyze the Problem

Students will form into small groups (contain 5-8 students) and it will be led by facilitator or tutor. After that, all the groups will get a problem scenario (without learning process at early stage). Students must analyze, synthesize and evaluate to gain a sense of the whole and formulate a viable solution [17] (p. 20). In this process, students will find a real problem, learning issues or learning objectives regarding to three main problem:

- What do you know about this problem?

- What did you require to solve this problem efficiently? And
- What are the sources you require to solve this problem or this generated hypothesis? After that, the students must make an action plan to solve this problem.

Phase 2 Find, Evaluate and Use of Information:

The students are allowed to implement self-learning. They are required to use CT skills, to evaluate and to use the information according to learning issues and problem or hypothesis that they already know or gain in the first phase.

Phase 3 Presentation and Synthesis:

The students will return to their group and will evaluate the problem according to information and knowledge that they gain in the self-learning phase. After developing the best solutions, they will evaluate them in light of the problem statement's central issue and identified condition. Once they select the solution that fits best, they prepare to present their finding and may choose to share the problem and their solution by using concept maps, charts, graphs, proposals, position papers, models and so on. The students will construct knowledge to relate the new knowledge to the current knowledge (if they find new learning issues after the re-evaluation of the problem in phase two and phase one, they can redo).

Phase 4 Abstraction:

After all the tasks are complete, the students will discuss the problem and relate it to the same or a different problem to make a generalisation.

Phase 5 Reflection:

Students will reflect on the problem solving process. In discussion, students will implement self-evaluation and peer-evaluation. This phase will help students to improve their meta cognitive skills.

Another PBL Model as suggested by Torp and Sage [18] (p. 34):

- The preparation stage of students
- Meet with the problem
- Identifying information
- Generate a problem statement
- To collect and share information
- Generating solutions
- Determine the appropriate method of solution
- Presenting the solution (performance assessment).
- Debriefing problems

In this model, Torp and Sage [17] proposed that through the teaching and learning using PBL approaches, students construct knowledge revolving around a relevant problematic situation in a rigorous, thoughtful, connected way. Torp and Sage [17] also agree with Savery and Duffy [15], *"PBL exemplifies a constructivist model for education, which serves to best prepare our students for life now and in the future"* (p. 45).

In this particular model, Torp and Sage [17], proposed that the events generate important learning issues around a carefully crafted problem situation so that students can work through the issues in authentic and rigorous ways. Additionally, these events are not necessarily rigid, fixed, or strictly sequenced. At the end of the process, learners may revisit parts of the PBL sequence, particularly *defining the problem statement and gathering and sharing of information,* as they delve deeper into the problem.

According to Savery and Duffy [15], these phases can be applied in a different ways and over various time-spans. This is supported by Boud and Felletti [4]:

PBL is an approach to structuring the curriculum which involves confronting students with problems from practice which provide a stimulus for learning. However, there are many possible forms that a curriculum and process for teaching and learning might be compatible with this definition [4] (p. 15).

Additionally, PBL also engages students in the learning process through using real problem and it also encourage students to involve in deep learning, to avoid memorization of facts and instead becomes focused on a deeper understanding of the situation under study [19]. Additionally, the way of presenting problem to students also plays an important role in learning process.

Overall, the PBL models presented by Barrow [2], Engel [in 12], Savery and Duffy [15] and Torp and Sage [17, 18] are very important as the major unique characteristics in determining the authenticity of this learning approach. Subsequently, these models are directly used by the researcher in applying the study on

the Business Education students in a Malaysian university. This is consistent with the effectiveness of PBL in promoting the students capabilities and achievements in line with the Malaysian government's aspiration to create well-rounded university graduates through the introduction and emphasis on the soft skills.

The Benefits, Importance and Effectiveness of PBL: According to Savin-Baden [20], therefore students' conceptions of learning and their conceptions of themselves as students and learners are key factors in any attempt to implement PBL successfully and effectively. She also claimed that this approach would improve students' conceptions of learning to a greater extent than a conventional curriculum, thereby increasing their potential to be lifelong learners. In line with this, as stated by Smith [21], PBL has much to offer Business Education. This approach is a means of using realistic practical problems to drive students' learning of disciplinary content. Learning in this way has many direct and indirect benefits, summarized in Table 1.

The following are of special importance for Business Education:

- PBL puts the educational focus on practice relevant knowledge, drawing attention from material that is purely of academic interest.
- PBL assignments can draw on knowledge from multiple disciplines, increasing students' abilities to integrate knowledge across business functional areas.
- By working in problem solving teams, students using this approach are able to develop teamwork, leadership and interpersonal skills.
- This learning approach also increases student motivation, a *"supercharging"* effect that boosts these and other benefits.

With PBL, there will be higher understanding and efficient growing skills for the students. In other words, this learning approach is more meaningful, useful and relevant to learning sources in lecture or tutorial rooms. When a problem is given, it will get full attention from the students; additionally, difficult but useful, higher understanding and growing skills occur. The transfer of knowledge and skills are easy to occur because students have a chance to train and use the knowledge and skills in the real situation. It is important because social interaction is a main aspect in the real world and working environment. This learning approach will use group work in a problem solving process.

According to Smith [21]), most of PBL implementations and research are to be found in medical education and he summarized and reflected the benefits, importance and effectiveness of PBL as shown in Table 1 above. In this regard, we claim that the implementation of PBL can be achieved in the field of Business Education within providing and solving the problems arising in a positive way. However, the value or the quality of performance in the area of Business Education might not be significant as the achievement attained in the field of Medical Education. This would probably happen as the area of Business Education does not involve the recall of scientific information as required in the practical experience of the Medical field.

The following below is a summary of some benefits, importance and the effectiveness of PBL to the field of Business Education:

- Through PBL, it allows us to focus on the education-related knowledge to attract and drawing the attention of the practice materials on academic interest only.
- Tasks assigned to the students in PBL groups would enable students to use their skills and knowledge from the various disciplines and it also would enhance students' ability to apply and integrate knowledge throughout the functional area of Business Education.
- Through this approach, it requires students to work in teams to solve the problems presented by the facilitators or lecturers, they are able to generate and develop teamwork, interpersonal skills and also leadership skills.
- Through this approach, it may be possible to increase the student tendency or motivation besides to become and acts as the catalyst to enhance for other benefits.

Review of Research into PBL: Many studies in all aspects of PBL have been done in higher education institutions in several parts of the world. In Malaysia there is also research about the implementation of PBL methodology, but it is very limited. A discussion on this will be made by the researcher in in a later section.

The Efficacy of PBL in Tertiary Education and Teaching Approach: The analyses below included attempts to show the potential of PBL for implementation and impact on CT skills in teaching Business Education. There has been controversy in recent years over the efficacy of PBL as a teaching and learning methodology [29, 30, 31, 32, 33, 34].

Table 1: The Benefits, Importance and Effectiveness of PBL

Potential Benefits of PBL	Relevance Research	Benefit, Importance/Effectiveness of PBL in Medical Education	Management Education
Develop problem-solving skills	Patel, Groen, & Norman [22]; Berkson [23]	Important, but little evidence of PBL effectiveness	Highly important, uncertain effectiveness
Improves knowledge retention and recall	Norman & Schmidt [7]	Highly important, with mixed evidence of PBL effectiveness	Important and PBL may be effective.
Increases of understanding of material	Bridges & Hallinger [24], Woodward, [25]	Important, with some evidence of PBL effectiveness.	Important and PBL may offer advantages.
Improve focus on practice-relevant knowledge	Boud & Feletti [4]	Important and good reasons for believing PBL is effective.	Highly important; PBL effectiveness depends on the use of real problems.
Improves knowledge integration	Boshuizen, Schmidt & Wassamer [26]	Important, with evidence of PBL effectiveness.	Highly important and PBL is likely to be effective.
Promotes thoughtfulness	Schmidt, Dauphenee & Patel [27]	Important and PBL is promising, though there is little evidence of its effectiveness	Important and PBL may be effective.
Develop teamwork, leadership and social skills	Bridges & Hallinger [24]; Woodward [25]	Important and PBL is likely to be effective.	Highly important and PBL is likely to be effective.
Develops lifelong learning skills	Blumberg [28]; Woodward [25]	Highly important with much evidence of PBL effectiveness.	Not as important unless PBL develops experiential learning skills.
Motivates student learning	Norman & Schmidt [7]; Woodward [25]	Important, with considerable evidence of PBL effectiveness	Highly important, but PBL may not be effective with some students.

Source and adopted from Gerald F. Smith (2005, p. 361) [21]

Based on Hmelo-Siver [35], the goals of PBL include helping students to develop flexible knowledge; effective problem-solving skills; self-directed learning (SDL) skills; effective collaborative skills and; intrinsic motivation. PBL is a process that promotes active learning using CT [36]. Among educational strategies, PBL is thought to promote CT [37]. This shows that PBL is an effective teaching and learning method and has a positive impact on students. There are many studies which support these benefits of PBL but there has been little research on PBL approaches in the teaching of Business Education. Similarly, the advantages of this approach are well documented especially in the medical, engineering and sciences education. Most of the claims made for the achievements of PBL seem to be based on anecdotal evidence or small scale evaluative studies which may not be widely generalised.

Through this PBL methodology, students became more motivated [38] and their research became more focused and meaningful. This is supported by Chin and Chia [39] and Syed Anwar [40] that PBL methods which involved an identified problem by students were efficient. Students became highly motivated because they treated the problem as their own. The students also became more involved in learning and become more creative and critical [41, 42, 43]. As for De Graaff and Kolmos [44], they believed that PBL also helped to increase the consideration of interdisciplinary knowledge and skills. Additionally, PBL has potential to increase the cognitive competitiveness of individuals by eliminating barriers that may inhibit work processes [45] and encourages students to apply relevant and meaningful information to real life situations [46].

CT and its correlation with PBL were investigated by Tiwari *et al*. [47]. The authors compared relative effect of PBL and traditional lecture on stimulating CT in undergraduate nursing students. Using a randomized controlled trial and the California Critical Thinking Disposition Inventory (CCTDI), the study was conducted over a three-year period. Employing a pre-test and post-test design, the students were assigned to either PBL or lecture as a learning method. The data were analyzed using multivariate regression and 1 sample and 2 sample t tests. This method was chosen to determine the factors that may have affected the scores on the CCTDI. The researchers also used qualitative data from interviews, coded the data into categories and compared and contrasted this additional information. Tiwari *et al.* [47] found a positive correlation with PBL and an improvement in students' scores on the CCTDI after three years. Further research was suggested, to include studies of motivational differences among students who experienced PBL versus lectures. Sulaiman [48] also found that PBL is capable of having a positive impact on students' CT for certain criteria. Her study employed a quasi-experimental design based on mixed between-within-subjects repeated measure to investigate whether student performance in creative and CT through PBL online in Physics at tertiary level in Malaysia. In this study, Sulaiman used the Torrance Test of Creative Thinking (TTCT) and the Watson Glaser Critical Thinking Appraisal (WGCTA) to measure the 102 students' thinking skills.

Skills, Personal and Propositional Knowledge: Morales-Mann and Kaitell [42] and Du [49] found that

PBL has also been useful in developing management, collaboration and communication skills. Savin Baden [20] and Du [49] conclude that PBL has also helped in improving the meaningfulness of learning. According to Frenay *et al*. [43], students in PBL curriculum may be better able to learn and recall information and improving engagement.

Summarising and reflecting on the work by Ward and Lee [50], in *"A Review of PBL"* who claimed that the PBL process expands students' CT and problem-solving skills while enhancing their creative capabilities; inter disciplinary teaching is appropriate for vocational subjects, including family and consumer science and traditional academic subjects like language, sciences, humanities, history, economics, geography and mathematics. The use of PBL by teachers will enable students to get the opportunity to acquire critical skills for the workforce of the future. The rationale for PBL derives from findings of the cognitive sciences regarding how we learn. This is based on the simple premise that problems should precede answers. In PBL, the learning process begins by presenting the learner with an engaging problem, question, or puzzle. Learners discover course concepts for themselves as they explore the problem. However, participating in and exploring the learning event often provides the impetus to engage content and develop skills, just as experts do in practice [50].

Based on a study by Yuan *et al*. [51] to verify promoting CT skills through PBL among Chinese baccalaureate nursing students, it was found that the approach facilitated the students in sharing their opinions with others, analyzing situations in different ways and thinking of more possibilities for solving problems. This learning approach can be a student-driven process that promotes active learning by placing emphasis on research, planning, higher level thinking, CT and problem solving [52, 53]. By using a sample of real-world problems to provide students with an alternative form of educational material delivery, this approach improves students' clinical reasoning and professional preparation [54, 55]. It increases the active learning process, allowing students to engage in a realistic problem with enthusiasm, initiative and motivation, thus promoting CT [56]. According to Zadrak Ndii [57], all this evidence shows that PBL is an effective method to encourage students to develop management, collaboration and communication skills and think critically.

Self-Directed Learning (SDL) and Teamwork: Other intended learning outcomes for PBL over and above knowledge acquisition; these would include a capacity for team-working ability [41] and autonomous learning [42]. Hmelo-Silver and Lin [58] used information processing and constructivist theories to examine a component process model of the SDL process and they argued that the students, when faced with a novel problem, must use meta cognitive strategies to identify what they do not know and what they need to learn more about to solve the problem. Students also need to figure out what resources they need to remedy their knowledge deficits. Lastly, the new knowledge must be evaluated to determine whether it is the appropriate knowledge and to integrate it with prior knowledge to solve the problem. Hmelo-Silver and Lin [58] used methods of protocol analysis from cognitive psychology to compare PBL and students' SDL processes on a novel problem solving task. Hmelo-Silver and Lin [58] also examined several of the individual component processes in SDL, as well as how well students use new knowledge in problem-solving. The findings showed that PBL students are more likely to identify hypothesis related learning issues, to develop a well-specified starting point for their SDL in the plan they generate and to integrate new information into their problem solving. Additionally, Du [49] shared the opinion that PBL helped in improving SDL capability. Du examined the learning experiences of engineering students of both genders in a problem based and project organized learning environment at a Danish university. This qualitative study related an amalgam of theories on learning and gender to the context of engineering education. More importantly, SDL is a core concept [59] and an important characteristic [60] in PBL. According to Burch [61], PBL methods promote political, social and cognitive abilities. Students benefit from personal experiences that illustrate collaboration over competition, participation over indifference, listening and deliberation over knee-jerk reaction and democracy over disillusionment or despotism. Developing these political and ethical sensibilities is as important as fostering cognitive skills. PBL appears to be one of the most coherent pedagogical approaches on offer in higher education; offer opportunities for both large scale rigorous evaluative studies and smaller in-depth qualitative studies to unpack the important components of the approach.

Student Satisfaction and Achievement: Tan and Ng [62] stated that PBL premises on its emphasis of active learning through solving *'real-world'* problems as well as its multi solution approach is likely to have an advantage if positioned as a pedagogical strategy for entrepreneurship education. Yuan *et al*. [51] provided an explanation that PBL approach, in the context of nursing

education actually increased students CT skill more than the lecture approach. They also examined the effect of PBL on nursing students' CT skills. They concluded that PBL students' CT skills did not appear to show significant great development in relation to the deduction, inference and evaluation subscale scores. This argument does not stand up, for many students, the types of active learning like PBL requires is and an unusual experience. One method for assisting students in their learning understanding of the PBL process is to ask them to reflect on the experience of PBL at key points in the process [63]. This method allows students to analyze and find the solution to a problem rather than simply applying methods that already known. Learning begins with a problem to be solved and the problem is posed is such way that students need to gain new knowledge before they can solve the problem.

PBL helped to promote deep approaches of learning instead of surface approach [64, 65]. According to Kivela and Kivela [66] and Du [49] after exposure to PBL methods, students demonstrated that they were able to take a more pro-active role in their learning, they more readily develop self-management skills in term of their own learning [67] and more self-directed in their learning activities. Similarly the students talked about learning in PBL as being both fun and hard at the same time [68, 69]. For example, group activities rated the highest out of the classroom activities that the students participated in. Qualitative feedback from the students also showed that they valued communicative and interactive learning activities more than the traditional lecture-led method of learning [66].

Additionally, Savin-Baden [20] believed that PBL helped to develop criticality of learners and the students may be better able to integrate basic science knowledge into the solutions. A recent development in tertiary education involves the application of PBL as a curricular vehicle to develop student talent. According to Brownell and Jameson [70], PBL has been used for a decade in one graduate management program. PBL capitalizes on synergies among cognitive, affective and behavioural learning. Although Management Education usually privileges cognitive learning, affective learning is equally important. Perhaps it is true that by focusing on real-world problems, PBL helps students appreciate multiple perspectives, recognize non-rational elements of decision making and confront ethical quandaries. This does indicate that PBL is an effective method to encourage students to analyze and think critically. And it is hoped that by thinking critically, the students would not simply imitate existing Business Education methods, but would create and pioneer new approaches.

CONCLUSION

From this PBL review discussion, the types of problems and how these problems should be solved can influence students' thinking and how they gain knowledge. Specifically, problem and problem solving process are the main characteristics in PBL. Therefore, it can be used to explain both issues. Boud and Feletti [4] (p. 17) stated that the advantage of PBL is to help Business Education students to develop the ability for SDL in order to cope with the ever changing and increasing body of knowledge they will need to succeed as professionals.

Student experience is a priority in the preparation and to ensure the effectiveness in designing the problems and suitable for PBL curriculum. Structuring of knowledge in PBL in view of the Schmint [71] are based on following approach: a brief analysis of existing problems and solutions through discussion activities of small groups; expression and critique of existing ideas or information and the search for new ideas or information actively; restructuring existing knowledge; building of semantic networks and relationships and building social knowledge; learning in context and findings or presentation simulation based on the ideas or information search and consistent with existing problems.

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