

An Exploration on Students' Perceptions in Implementing Problem-Based Learning (PBL) Approach for Instructional System Design Course

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Abstract: Problem-based learning is a pedagogical approach that allows students to engage with problems assigned to them. It is a platform that enables students to get involved with real world problems while applying concepts rather than being directed with presentations of facts per se. Although the approach is considered as effective, it is not the usual traditional approach used in classes as lecturers act as facilitators guiding the students in finding the problem solutions, instead of giving the solutions. Thus, this study investigates students' perceptions in implementing problem-based learning approach for their Instructional System Design (ISD) course. 35 students of Applied Language Studies in a public university in Malaysia were purposively selected for the study. This study made use of quantitative approach. In collecting the data, a survey was administered and a set of questionnaires was used as the tool to gather the data. The findings showed that most students found PBL provided positive learning experiences and beneficial for them. This study helps lecturers and university management to get insightful feedback on incorporating PBL in the course currently and in the future.

Keywords: problem-based learning, instructional system design

1. Introduction

Traditional approach of teaching usually involves the lecturers or instructors giving lectures and providing materials to the students. In most cases, lecturers would provide answers to the students for the questions prompted. However, according to Samsudin et al. (2019), this does not promote students' understanding of the subject concepts effectively. Students are complacent with this approach as they act as receivers and not required to contribute or participate. On the other hand, PBL is a learner-centred approach that demands students to contribute and actively participate in the lessons. They are usually given real-world related problems and asked to find solutions on their own, using various resources which encourages better concept understanding and problem-solving skills (Dorimana et al., 2021). In PBL, lecturers act as facilitators that guide students during this process. As stated by Li and Chen (2018), PBL shows students' significant involvement in their study and points to the transformation in the teacher or lecturer's role from traditional instructor to facilitator.

Nonetheless, given the various benefits of PBL, some students may find it challenging to adapt to this non-traditional approach. Most references are based on the journals, reference books and textbooks. The situation is different in PBL as students need to be actively involved in their own learning and be pro-active as lecturers will only be the facilitator to guide them through the process of finding the solutions to the problem and the resources are not limited only to books. They are allowed to do their own field research and get information from a variety of resources (books, journals, reports, online information or subject-matter experts) (Queens University, 2024). Azlin et al. (2015) found that due to years of traditional learning mode, most students are unprepared for the empowerment to take responsibilities of their own learning that demands them to seek for solution independently and collaboratively. Thus, this study intended to investigate students' perceptions towards using PBL for their ISD course in terms of knowledge and skills and attitudes.

The research question of the study is "What are the students' perceptions towards implementing problem-based learning approach in Instructional System Design course?". The objective is to investigate students' perceptions towards implementing problem-based learning approach in Instructional System Design course.

2. Literature Review

2.1 Problem-based learning

According to Sulaiman (2010), problem-based learning strategies are becoming well-established and an area of study within the field of instructional system design (ISD). This is because in ISD, students are exposed to various models and usually would apply the theories and concepts by developing a module or a project using the ISD model. This is coherent with the nature of PBL that exposes students to real-life situations or problems, which allows students to be involved actively in the classroom activities by relating the concepts to the situations (Mansor, 2015). Real-life problems or situations open up for multiple possible solutions that provides many paths to the students to explore their learning journey (Li & Chen, 2018). Incorporating and designing such authentic problems into learning is the main factor that distinguishes PBL from other existing methods (Sterling, 2013). Through this method, students develop critical thinking skills through finding solutions for the problems including analysing information, evaluating arguments, and making sound judgments (Sartika, Rahman, & Irfan, 2023).

According to Manuaba (2022), there are three main learning objectives in PBL which are to apply deep content learning, apply problem analysis skills and develop solutions for problems, and apply self-directed learning among learners to adapt learning styles. Tan (2003) stated that there are five steps in PBL which are 1) meeting the problem, 2) analysing the problem, 3) discovery and reporting, 4) presenting solution and reflection and 5) summarising, integrating and evaluating. This highlights how PBL promotes critical thinking and creative thinking (Wang, 2018). In relation to this, previous study conducted by Aidoo (2016) found that students' mastery of concepts increased by 20.4%. Besides that, a study done by Trullas et al. (2022) found that PBL was more effective than the traditional lecture learning in improving knowledge and skills in medical education. In addition, Hadibarata et al. (2023) stated that PBL encourages collaborative learning, creativity and innovation among learners.

Nevertheless, Hadibarata et al. (2023) also highlighted that PBL also has some challenges. Firstly, it can consume more time as learners need to do their research to find solutions of the given problems. Secondly, it can be challenging for evaluator to evaluate students' learning as the focus is on the process rather than the end product. Thirdly, it may be difficult to be implemented in mass class due to the high demand of teacher support. Lastly, it may not be suitable to all learners as some may prefer structured learning rather than open-ended approach like PBL.

2.2 Problem-based Learning in Malaysian Education

Problem-based learning has been embedded in curriculum of many higher learning institutions in Malaysia (Yeoh, 2019). Yeoh (2019) stated that some Malaysian universities that practised PBL included Universiti Malaya, Universiti Sains Malaysia and Universiti Putra Malaysia. Tan and Arshad (2014) highlighted that PBL is rarely practised in Malaysian secondary schools. Regardless of PBL being a great tool to promote active thinking and critical thinking among students, it was still not a common instructional strategy to be practised at schools. Due to the traditional or conventional teaching methods that emphasizes on memorising and recalling skills, students might find it difficult to compete in the real world that demand them to be competent problem solvers and communicators (Yeoh et al., 2017).

A study conducted by Amiruddin et. al. (2020) among engineering students at Vocational College Kuantan, Pahang, Malaysia found that the achievement of students in the experimental group that was exposed to PBL was higher than those in the control group. Besides that, in a study conducted by Abdul Rahim et al. (2022) among 50 first-year undergraduates from the faculty of biology from a public university in Malaysia, it was found that the integrated STEM (Science, Technology, Engineering, and Mathematics)-PBL module enhanced and retained the students' achievement in genetics concepts. Considering the various studies conducted in various fields in higher learning institutions of Malaysia, this study would look into Applied Language Studies students' perceptions towards their experience with PBL.

3. Methodology

This study made use of quantitative method. The sample of the study are 35 undergraduates of Applied Language Studies. They were purposively selected as the sample as they have undergone 10 weeks of ISD classes using the PBL approach. Purposive sampling technique was used to specify the sample group because there are specific characteristics that need to be fulfilled by the sample (Creswell, 2014). The students were exposed to various ISD model and have been assigned with various tasks on finding solutions related to real-life problems (PBL approach). Students were given ample time to do their research and later presented their solutions to the classmates and lecturer. All tasks given required students to work collaboratively involving discussions, problem-solving and decision-making. The lecturer acted as the facilitator and guided the students throughout the 10 weeks.

The main objective of collecting the data is to identify students' perceptions on using PBL approach, especially in terms of their knowledge and skills, and attitude. The data were collected through a survey that was administered using a set of questionnaires. The set of questionnaire consisted of 25 questions about the PBL approach used in their class. 14 items addressed the students' perceptions on their knowledge and skills while the remaining 11 items addressed their attitudes. The questionnaire was presented in Likert-scale form. The Likert-scale provided for this questionnaire are four scales which are 1=Strongly Disagree, 2=Disagree, 3=Agree and 4=Strongly Agree. According to Pimentel (2019), the Likert Scale is a psychometric concept commonly used in survey research that uses a guide questionnaire that provides respondents with answer options in scales. Then, the collected data were analysed using SPSS Statistics 29 and the method used to analyse the data was descriptive statistical method. Table 1 shows the interpretation criteria adapted from Alico and Gumbia (2015) that was used in the study.

Table 1: Interpretation Criteria

Mean	Category
1-1.74	Low
1.75-2.49	Moderate-Low
2.5-3.24	Moderate-High
3.25-4	High

4. Results and Discussions

The research question aims to investigate student's perceptions towards implementing problem-based learning in ISD course. A descriptive analysis was conducted to answer this research question.

Table 2: Students' Perceptions on Knowledge and Skills

No	Item	Mean
1	PBL helps me to understand the task better	3.06
2	PBL encourages self-directed learning	3.27
3	PBL improves my problem-solving skills	3.18
4	PBL improves my decision-making skills	3.15
5	PBL encourages collaborative learning	3.27
6	PBL helps me to identify my strengths and weaknesses	3.12
7	PBL encourages involvement in my own learning	3.27
8	PBL improves my communication skills	3.21
9	PBL encourages me to develop new ideas	3.12
10	PBL can help retain my attention to the lesson	2.85

Table 2 illustrates the perception of students' towards implementing PBL in terms of their knowledge and skills. The highest mean score 3.27 for item 2, item 5 and item 7. This shows that students found that PBL encourages self-directed learning, collaborative learning and their involvement in their own learning. This is followed with 3.21 mean for item 8. This highlights that students found that PBL improves their communication skills. Item 3,

item 4, item 6, item 9 and item 1 recorded the mean of 3.18, 3.15, 3.12, 3.12 and 3.06 respectively. Lastly, the lowest mean is 2.85 for item 10 regarding if PBL can help students' attention to the lesson.

Table 3: Students' Perceptions on Attitudes (Facilitators)

No	Item	Mean
11	I think PBL can substitute lecturers/facilitator	2.56
12	I think PBL can replace lectures/classes	2.32
13	I think that I can learn on my own without facilitators	2.21
14	I prefer PBL than the traditional approach of learning for Instructional Design course	2.65

Table 3 illustrates the perception of students towards implementing PBL in terms of their attitudes towards facilitators. The highest mean is 2.65 for item 14 which shows that students prefer PBL than the traditional approach of learning for ISD course. The second highest mean is 2.56 for item 11 that highlights if PBL can substitute lecturers/ facilitators. The rest of the means showed moderate-low with 2.32 and 2.21 for item 12 and item 13 respectively. This shows that students are negative towards substituting and replacing lecturers/facilitators entirely and being able to learn on their own without facilitators.

Table 4: Students' Perceptions on Attitudes (Learning)

No	Item	Mean
15	I contribute ideas during discussions in PBL	3.21
16	I feel motivated to come to class because of PBL	2.73
17	I find that PBL increased my comfort level working in groups.	2.85
18	I find that PBL increased my understanding towards the course content.	3.12
19	I find that PBL assisted my learning in other courses as well	3.82
20	I think PBL requires me to be an active thinker.	3.35

Table 4 illustrates perception of students towards implementing PBL in terms of their attitudes towards learning using PBL. The highest mean was recorded by Item 19 with 3.82 where the students found that PBL assisted their learning in other courses as well. The second highest mean is 3.35 for item 20 where students thought that PBL requires them to be active thinkers. The lowest mean is 2.73 for item 16 in which students felt motivated to come to class because of PBL.

Based on the results presented above, this study found that overall students have positive perceptions towards implementing PBL for their Instructional Design course. The results derived from the analysis showed that students' have positive perceptions using PBL in terms of knowledge and skills as PBL encourages self-directed learning, collaborative learning and promotes involvement in their study. This is congruent to Zheng and Huang's (2016, as cited in Ghani et al. (2021) research that has proven that responsive communication among students improved collaborative effort and group academic performance in undergraduate and master's students in education and psychology. Besides that, students also agreed that PBL improves their problem-solving and decision-making skills. This is probably because the meaningful interaction among them enables them to search and decide on the best solutions for the problems encountered thus enhancing their skills. This finding is supported by Wan Hassan et al. (2020) where they stated that according to studies, PBL approach was proven to invite many ideas for solutions to problems, and allows students to choose the best results as the approach promotes sharing of ideas without judgement and critics among the participants.

In addition, students also have positive perceptions using PBL in terms of attitudes towards facilitators and their lessons. Students still believe that they need to have lecturers/ facilitators to guide them in class rather than not having them at all. As stated by Yi Chuan (2011) some students might feel anxious about the output of their discussions as they were not sure whether they were on correct paths or were making mistakes without the

presence of a facilitator. They also added that facilitator plays a major role in probing information when there is lack of depth in learning. Students also found that PBL assisted them in learning other subjects as well. This is probably because the skills taught in PBL trains them to be more independent and active in their learning. This is supported by Susanti and Taufik's (2020) study where they found that the learning process in PBL encourages students to take part actively and they were given more responsibility in the continuity of the learning process and their understanding not only limited to the lessons. Students also found that PBL requires them to be active thinkers and making them contribute in discussions. This is probably because of the nature of PBL that prompts students with ill-defined real-life problems that demand the students to think critically and creatively in finding solutions. A study by Sulaiman (2010) found that students who engaged with the PBL method demonstrated positive improvement in critical thinking and better creativity compared to the students that were exposed to traditional method. Nevertheless, the mean for PBL being a motivator for students to come to class is not that high. This is probably because of the challenges of PBL that may have affected students' motivation to learn. A study by Argaw et al. (2017) found that there was no significant difference in students' motivation to learn physics between the experimental and comparison groups in relating to PBL among 81 students at Wachemo Preparatory school. Fukuzawa et al. (2017) also found that a particular subset of students had low motivation at the end of the PBL course (78%).

To conclude, the study found that students showed positive feedback on their perceptions towards using PBL for their ISD course. Although some students may prefer traditional approach as compared to PBL due to some reasons, PBL is still preferred by majority of the students due to the benefits and learning experiences that it offers to learners. Lecturers and university management could use the result of the study to consider embedding PBL in the classes and course curriculum. Future studies could be conducted to see how students react to PBL when integrated with the use of technology or conducted during online classes.

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