Bridging Academic Literacy and Real-World Problem-Solving Skills: Project-Based Learning in A Malaysian University ESL Classroom

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ABSTRACT

This study investigates the implementation of project-based learning (PBL) on academic literacy and real-world problem-solving skills among ESL students in a Malaysian university. Aiming to move beyond traditional passive academic reading and writing instructions, the study implements PBL in an advanced Academic English course by engaging students with complex, authentic learning tasks. Approaching the study from a case study approach and following PBL framework, students conducted projects on topics such as homelessness, banking preferences and public vs. private transportation. The data was also collected via semi-structured interviews with the students and analysed using thematic analysis. Findings revealed that PBL significantly enhances students' ability to critically engage with texts, conduct independent research projects, and synthesize information effectively. The approach also fosters soft skills development mainly in areas of collaboration, critical thinking and adaptability. By bridging academic literacy with 21st century skills, the research provides insights into how Academic English classroom can be transformed to meet the demands of workplace and society.

Keywords: Project-Based Learning, Academic Literacy, 21st Century Skills

INTRODUCTION

21st century educational goals are designed to ensure students' mastery of the learning process through a self-directed learning environment/situation that provides complex learning. Project-based learning in language classrooms has increased interest among educators who support 21st century pedagogy/approaches in learning. Academic reading and writing classrooms require a refreshing pedagogical approach to meet the demands of todays' working requirements that require a person to be independent, a problem solver, critical thinker and a good team worker. Traditional ESL Academic English classroom often rely on passive learning methods which focus on text-based comprehension and always a teacher-centred approach (Wilson et al., 2023). This lack of engagement limits students' ability to develop practical and transferable skills such as critical thinking and problem-solving, which are essential in today's workforce. Thus, to enhance the students' academic skills, higher leaning institutions are given the task to produce students who are strong in soft skills language classrooms can provide.

Students need to master the learning process, to engage with their curriculum, own and direct their learning in their own individual and flexible ways. The goal of education should be to provide complex learning environments for students which incorporate authentic learning, assessing and personal development. It will allow learners to solve the types of complex problems they will face in real life. Without disregarding the social nature of learning a task that will provide social negotiation, engagement and learning is a great tool. Learning is a cultural interchange between group members (Cheng, 2021). Collaboration creates an opportunity for learners to share their understandings with others and to have others do the same with them. This provides multiple perspectives to each learner, and this negotiation process between peers enhances understanding. Hence, there is a pressing need for a pedagogical approach that integrates information literacy, encouraging students to engage in authentic inquiry and critical evaluation. This study aims to explore the implementation of problem-

based learning in an Advanced Academic English course in a Malaysian university. Specifically, it attempts to answer this research question – In what ways do Project-Based Learning help to enhance the development of information literacy skills among ESL students in an Academic English course?

LITERATURE REVIEW

Project-based in Inquiry-based learning approach

Project-based learning, as one of the 21st-century instructional and pedagogical approaches, is related to the constructivist approach in learning. Students in current times were found to prefer a more hands-on experience and activities that are 'opposed' to traditional lecturing or passive activities. They prefer less lecture and more engaging activities that supports learning which should not be confined to classroom settings. Inquiry-based pedagogy provides an opportunity for the students to engage in the culture of inquiry for hands-on learning experience. It develops self-authorship and empowerment for learners which is essential for life-long learning experience.

The root of PBL is related to John Dewey, an educator and philosopher, who believes that learning through inquiry encourages deeper and meaningful learning. Although first developed in Western cultures, project-based learning has recently become popular in some Asian countries, as it is widely believed to be a powerful teaching strategy that promotes self-directed learning PBL is built through i) active construction, ii) situated learning, iii) cognitive tools and iv) social interaction. Inquiry-based learning (IBL), also known as enquiry-based learning, is a pedagogical approach that uses questioning to involve students actively in their own learning (Gholam, 2019). Recent studies have indicated that IBL is more effective in promoting learning outcomes such as deep thinking, the ability to apply knowledge, and reasoning skills when compared to the traditional didactic approach. One way to implement IBL is through student group projects (Al-Mohair, 2022). The difference between PBL and IBL are IBL focuses on developing questioning and reasoning skills through open-ended inquiry but PBL extends this practice by engaging students in multi-phase projects with real-world applications and tangible outcomes.

Also, PBL has seven important elements for successful PBL designs. It focuses on seven essential components for successful project design namely (i) authenticity, (ii) student's voice and choice, (iii) reflection, (iv) critique and revision, (v) public product, (vi) challenging problem or questions, and (vii) sustained inquiry. These principles become the basis of PBL approach that we designed for the Academic English course in this study.

Academic information literacy

Current generation known as digital natives, are technology savvy, live with gadgets such as Ipad, tablet, and smartphones. Bruce (1995) suggests an information literate person is one who (i) recognises the need for information, (ii) recognises that accurate and complete information is the basis for intelligent decision making, (iii) identifies potential sources of information, (iv) develops successful search strategies, (v) accesses sources of information, including computer-based and other technologies, (vi) evaluates information, (viii) organises information for practical application, (ix) integrates new information into an existing body of knowledge and (xii) uses information in critical thinking and problem solving. The characteristics of an information literate person will also be observed and incorporated into the teaching approach of PBL that is implemented the Academic English class in this study.

RESEARCH DESIGN

This study adopts case study design (Yin, 2018) specifically the single case study approach. The case study design allows for in-depth investigation of PBL implementation in Academic English classrooms, capturing the contextual dynamics and students' experiences within PBL approach.

Participants and Setting

The participants were 60 undergraduate students enrolled in Academic English course at one of the Malaysian public universities. The course was designed to develop academic writing and reading competencies. The participants were selected due to the course's focus on academic term paper writing based on small-scale research that aimed at solving real-world issues.

In the efforts to understand more about the impact of PBL in the academic language course, this approach was adopted in the reading and writing classroom among university students in one of the public universities in Malaysia. The undergraduates in Malaysian universities are required to attend three English courses as part of their curriculum requirements. The focus of these classes is on academic reading, writing, and communication skills. The students spent most of their time learning academic reading, focusing on reading expository texts from English textbooks. The writing skills involve summary writing, essay writing for the first English level, while producing a term paper through secondary sources for the second level English proficiency class.

The advanced academic English course was chosen for this study because it required the students to write either problem-solving or argumentative term papers supported by secondary sources. The introduction to project-based learning approach was their first experience, thus, allowing for better insights on the role of PBL in academic reading and writing classrooms. As such, this approach was adopted to 'revolutionise' the traditional academic reading and writing class in the effort to encourage active participation among the students in the reading and writing activity. Implementing PBL in the academic reading and writing allowed the students to experience learning in a more engaging and meaningful way (Lim, 2023).

As part of the English course, students write a term paper, either a problem solution or argumentative term paper. Many students chose the problem-solution situation. Some of the projects they chose involved the engagement with homeless people in Kuala Lumpur city, with bank officers as they investigated the people's preferences between online and traditional banking and the issues that arose in these transactions, and the difference between the use of public and private transport. The students were encouraged to take photos, engage with the public and video record the fieldwork. Table 1 indicates the stages in the PBL.

Table 1: Stages in PBL

Phase	Task
Phase 1	Topic formulation
Phase 2	Project planning
Phase 3	Information search
Stage 4	Outline of term paper
Stage 5	Fieldwork
Stage 6	Project presentation
Stage 7	Writing up term paper

Apart from the PBL stages, this study implemented the learning session based on students' and teachers' roles in PBL as presented in Figure 1 as a guideline. The guideline was constructed based on the previous literature and adapted by researchers in this study.

Students' Role

Teachers' Role

Familiarize with PBL concept

Briefing / Pre-Teaching

* Brief on PBL process to ensure students understand the concept.
*Provide clear guidelines on the project workflow.
* Emphasize the importance of the objective of the project.

Understand information literacy concept

* Search for related topic.
* Evaluate the resources.

Introduction to information literacy

* Emphasize the importance of finding credible online resources.
* Emphasize the importance of evaluating online resources.
* Activate students' background knowledge on topics of their choices based on their reading.

Engage in PBL tasks

Monitoring Group Work

* Make sure students understand the issue of the project.
* Emphasize that their role is to investigate and find answers to their investigation.
* Facilitating their progress.
* Provide feedback on students' inquiries on their work.
* Related their project to the readings that they do during IL.
* Assess progress of the groups.

Writing up the project

Writing Process

* Provide inputs on academic writing conventions.
* Provide relevant language inputs: Phrases or Vocabularies.
* Assess students' progress.
* Make sure that students provide relevant evidence from the field work and readings to support their findings.
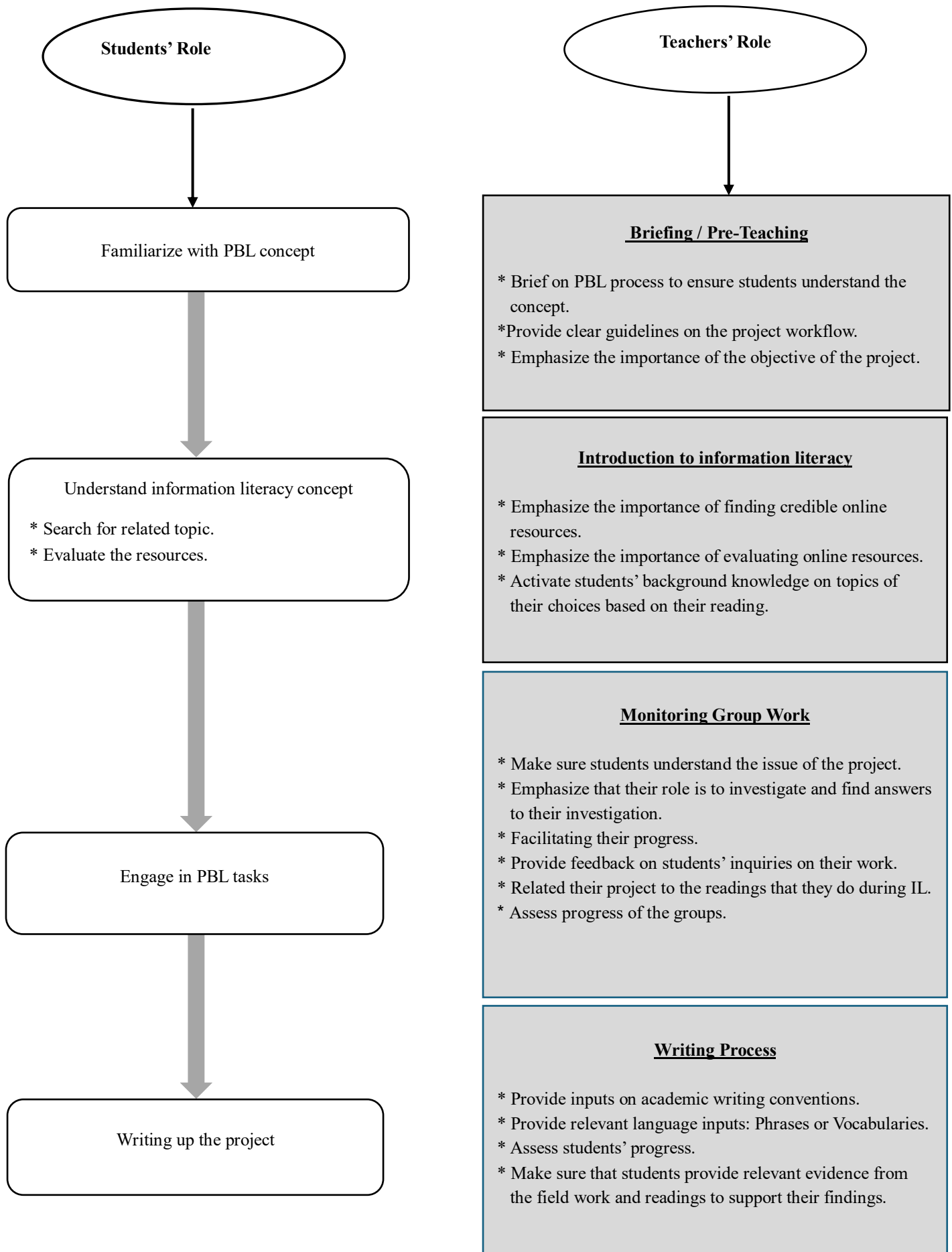
Figure 1: Guidelines for implementing project work according to students' and teachers' roles in PBL in developing academic literacy

Based on these stages and guidelines for implementing project-based learning in the Academic English course, the approach was implemented over four weeks in the class. After they completed the lessons that used PBL approach, ten participants (students) were interviewed to gain insights into their experience of undergoing the PBL approach that is presented here. The data was analysed using thematic analysis (Braun & Clarke, 2006).

FINDINGS AND DISCUSSION

Theme 1: Information Literacy skills

One of the primary aims of the project is to help the students write a meaningful term paper which is not limited to secondary sources. The initial stage of the literacy work starts with information search activity that focuses on locating information through strategic information search. Many students, even at higher learning institutions are found to lack academic information searching skills even though they are born in a technology-driven world and are known to be skillful in navigating the online world and digitally competent (Buckingham, 2002). Instructional design on information literacy is critical to produce information literate graduates who are able to critically evaluate and synthesise online information. Information search strategy such as Boolean logic, phrase searching, field searching and parenthesis were introduced to the students. The following steps are to introduce how to locate credible online sources and evaluate the sources to establish the credibility of the sources available on the web. When they find the sources that support their inquiry, an evaluation of the sources is necessary particularly when the information available online are abundant and probably are not from trusted academic sources. Responses from the participants on the information literacy sessions suggested that they lacked academic information literacy skills.

Participant 1: "To us the most valuable knowledge is to find reliable sources. We usually just take any information that we find online. We also copy the link and paste as a reference"

Participant 5: "Before this, we believed information more from Wikipedia. We don't know anything about reliable sources. We believed the information found on the websites and just used the information"

Participant 10: "Finding reliable sources and doing the citations are what we learned most."

Locating and analysing the online sources appear to be important skills for the students. People who are information literate are good at knowing when they have a need for information. Identifying relevant information to address a given problem or issue, finding needed information, evaluating the information, organizing the information, [and] using the information effectively to address the problem or issue at hand are critical in this era of information age (University of North Texas, 2024). Hence, teachers should play a more critical role in inculcating good information skills dispositions in the classrooms to further enhance this skill among the students.

Theme 2: Fieldwork and enhancement of writing skills

Active learning in PBL is realised through fieldwork activities. Some IBL practices require the students to create digital forms to showcase their projects. Capturing the fieldwork process and journey is another form of authentic learning that allows them to construct and organize knowledge to present authentic product or knowledge to the audience (a teacher, assessor or public). Students are found to gain from factual learning (Barron & Darling-Hamilton, 2008) which ultimately enhances learning. Additionally, the enhancement of content knowledge provides better writing experience for students.

Participant 10: "If it is not the fieldwork, we just conclude that our writing is based on our opinion and what we read."

Participant 4: "We can write the term paper but the evidence is weak. The fieldwork allows us to argue in our term-paper as it provided enough evidence to support our arguments (in the term-paper) and strengthen our stand."

Participant 9: "The fieldwork allows us not to be biased in our writing our findings. We explained with data and statistics."

The engagement with the project allows the students to experience and understand what they have read in the secondary sources and provide strong evidence to support their initial reading on the topic. Hence, the project approach was introduced to them to achieve this and to enable them to present their work confidently and with better understanding of the issue or the topic that they chose to work on. The outcome of the project through fieldwork tasks suggests that the reading and writing processes are more meaningful.

The writing conventions of a research paper are different from writing for leisure in social setting such as blogs, Facebook status, Twitter or Instagram. It requires a more formal tone, precise word choice and many other conventions/styles. In many academic language classrooms in Malaysia, writing an academic text usually involves a passive act. In the current educational landscape, writing is social and contextualised.

Theme 3: Fieldwork and construction of new content knowledge

PBL is well-known for its ability to increase knowledge, particularly content knowledge for students. This has been consistently proven and reported in many studies. Fieldwork is an important aspect of PBL. It provides a rich experience in learning. Project-based learning enhances new knowledge among the students. They consistently reported that the process of the project increased their knowledge across the planning, fieldwork, and presentation engagement period.

Participant 7: "I didn't know about the issue in online banking and now because of this project, I know about this and I should be more careful about the security of online transactions"

Participant 1: "When we directly involved with the homeless people, we gained a lot of knowledge about them. Before this (project), we just assumed about them. It turned out that our assumption was indeed wrong after we conducted the fieldwork"

Participant 2: "We found that what we believed may not be true until we carried out the research project. We thought that our existing knowledge is adequate and better, but when we researched, it was the opposite"

Theme 4: Meaningful learning

Project-based learning is synonymous with meaningful and deeper learning. The engagement in the project allows them to understand the content of their work. Real-life engagement in their project such as comparing using public and private transport in Kuala Lumpur city allows them to have first-hand experience and self-explored the difference between walking and traveling by train and car and documenting their experience as they travel in both modes of transportation.

Participant 3: "We would not be able to understand the issue at hand if we just relied on secondary sources. When we experience ourselves, we can understand (about the situation) more. Much more meaningful"

Participant 4: "We are more exposed to the community than just stay in the classroom. So, more meaningful"

Participant 5: "Because we did and experienced it ourselves, we know what is correct. It is just like we are the investigator, to find out all those three objectives. So we can feel ourselves and learn and the knowledge that we get is better".

Theme 5: The development of self-efficacy

Self-efficacy is an important concept in Social Learning Theory of Bandura (Bandura, 1995). It is the personal judgment of the individuals about what to do and how much they can do to cope with possible problems. A

common feeling among the students is skepticism (Morse, 2021) of their ability to conduct the required project. Many of the students were initially skeptical of their ability to do the project as many of them did not have the experience in conducting and managing a project in their studies. A majority of the students stated that the project was their first experience. The project seemed overwhelming and required a lot of hard work to be successful. However, after the presentation or after they had completed the entire course, many of them were amazed at their own ability to successfully conduct the fieldwork and the project. Their realization of their potential and ability is satisfying the self-discovery of one's potential.

Participant 1: I discovered that I can do this project even though I am an introvert who doesn't like to meet people. But despite this, I finally realized that I can pull this off successfully.

Participant 5: We were not sure whether we could approach the public or we would get the cooperation from the public to allow us to interview them. But we managed to interview a few and we were very happy. We waited and finally we got what we wanted.

Theme 6: Communication and confidence level

One of the main criteria of 21st-century learning is the development of communication skills. At the end of the project, the development of confidence level in communication skills is evident. The students experienced an increase level of confidence in that they felt that they could present the outcome or findings of their projects and answer the questions posed by the evaluators and audience. They reportedly agreed that they level of confidence was better than their previous oral presentation experience.

Participant 2: We convinced the evaluators of our findings. We can answer all related questions because we are prepared and we have all the information.

Participant 10: I am confident to showcase our findings. It is our project, we have studied the issue and we can present to the audience confidently.

Participant 5: We created the video, we took notes, and we experienced ourselves using both private and public transport, we are confident that in presenting and we are excited to show what we have done.

Theme 7: PBL versus traditional learning

Interestingly, even though all the groups reported that PBL is time extensive, tiring, and stressful, they collectively preferred project-based to face-to-face classroom learning. The nature of inquiry-based learning through projects is more engaging and interesting and suits the current students' learning styles. The impact of PBL can be seen as presented below:

Participant 10: Traditional classroom is less impactful than project-based learning. Less effective. Project-based learning is the most preferred way of learning.

Participant 6: We prefer the project work even though it is tiring, stressful, and pressured by the timeline. At the end of the day, we learned a lot of new things.

Participant 2: Very tiring but at the same time when we look at the part that we are learning, it is all worth it and good. So, better do the project. We are better exposed to the community than just staying in the classroom. More meaningful.

Theme 8: Lifelong learning

21st-century learning necessitates the development of lifelong learning through engagement with real-world issues that immediately support authentic learning. Many studies have shown the relationship between PBL and

the development of students' perseverance, persistence, time management, and growth-oriented lifelong learners, to name a few.

Participant 1: "The project work is good for our future. We can apply what we learned in this project when we work"

Participant 3: "When we work later, we already have the experience in doing project and we know what to do. It requires us to do project planning, prepare a Gantt chart and follow the timeline accordingly. It teaches us how to manage our work"

Participant 9: "PBL helps us. Later, when we work, we have to communicate with people and this experience helps with our career life."

Hence, it is concluded that PBL core designs focus on the authenticity of the project and it works based on real-world learning environment. Apart from these eight themes that answered the research question, we also presented an interesting theme as challenges in PBL as we gained from the data, although it did not answer the research question, but added to the weight of implementing PBL in Academic English course.

Theme 9: Challenges in PBL

PBL faces several challenges in practice that require attention. particularly among teachers and practitioners. Teachers who lack knowledge of the basic principles of PBL may find this approach challenging. PBL is an open concept that requires an understanding of constructivism and social constructivism learning theory.

Students reported experiencing major challenges in completing the task due to time constraints. PBL is often regarded as consistently given positive learning development and, however, it also can cause them stress. The emotion while conducting the project is undeniably running high. Many students experienced high levels of stress and fatigue during the process. Many explained that the project is time-extensive while they also need to juggle with other courses. Some common remarks are:

Participant 2: It was very stressful, and tiring but it was fun at the same time.

Participant 4: What we learned in this journey is very beneficial even though it was very taxing and stressful.

Participant 7: We carried out the fieldwork after the class. The place was far and the activities were tiring.

CONCLUSION

The initial objective of the project was to gain insights into the students' acceptance of introducing new teaching strategy from a traditional reading and writing classroom to a more engaging journey with the complex and real-life situation. This effort has produced extensive findings. The constructive learning approach in education focuses on active learning that encourages students to independently construct and reconstruct their learning and knowledge development. The primary objective of PBL is to allow students to create meaning in their learning through active cognitive tasks and processes. Learning also should be a self-directed process that allows them to plan, monitor, evaluate their progress and find alternative solutions to problem and challenges that they face.

The changing workforce and the continuous call for relevant 21st-century skills for the current graduates emphasises the critical need for a more critical pedagogical approach that develops workers with better knowledge. Traditional academic classrooms are no longer sufficient to produce better readers, writers and communicators. Teachers and educators should embrace changes in the pedagogical landscape that require them to be more open and flexible in their teaching style which could help students to prepare for a more competitive world.

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