

CHAPTER 2

LITERATURE REVIEW

This chapter discusses the theories related to the research problem. Divided into two parts, namely the theoretical framework and relevant research studies. The first part discusses theories related to this research. In the second part, the researcher explains several previous studies that have been carried out on the same topic.

2.1 Definition of Project-Based Learning

Project-based learning is a learning activity that focuses on projects, with more emphasis on the process of how students can solve problems and ultimately produce a product. Some researchers have different opinions. According to Katz, L. G., & Chard (2000), Project-based learning is a very effective approach that allows the students to throw out opinions about the topics and use the skills acquired in the context of real and meaningful life and allows the learner to solve problems and creatively answer questions in the classroom and outside. According to Thomas (2000), project-based learning is a model that organizes learning around projects. It is also defined as a student-centered interdisciplinary activity with clear project outcomes (Han et al., 2015). Vaca Torres and Gómez Rodríguez (2017) also argue that "PjBL is a constructivist learning method that supports student learning through group work and social interaction to solve problems." PjBL is also seen as a student-centered pedagogy that encourages students to study subject matter in-depth, critically, and responsibly (Berliner, 1992). Following Dewey's action as a process that is organized and guided by activities and the questions they ask, PjBL involves students in creating knowledge and solving problems by engaging in real-world activities that have goals (Dionne, H., & Horth, 1994).

PjBL is thus not another method that is currently popular a sophisticated educational approach that has a deeper foundation in educational thinking that must be studied and appreciated (Van Lier, 2006). This is also supported by Boss, S., & Larmer (2018), who states that it has been well received and adopted by educators throughout the country and the world. With this, it can be concluded that Project-Based Learning (PjBL) has received recognition as a student-centered learning approach that encourages active learning, critical thinking, and problem-solving

skills. It also involves students working collaboratively on real-world projects relevant to their academic discipline. By engaging in project-based learning, students can apply their knowledge and skills in practical contexts, develop a deeper understanding of the subject matter, and gain valuable skills for their future careers. Bearing this in mind, the sociocultural theory, according to Vygotsky, Lev (1978), states that cognitive development is influenced by cultural and social factors. Cognitive development itself is a socially mediated process of acquiring cultural values, beliefs, and problem-solving strategies through collaborative dialogue with people who are more knowledgeable or have a greater level of understanding than the learner.

The main concept in sociocultural theory is the zone of proximal development (ZPD). This concept represents the gap between what students can do independently and what they can achieve with the help of other, more knowledgeable people, such as teachers, parents, or peers. Therefore, social interactions support the cognitive development of children in ZPD, resulting in higher levels of reasoning. It is generally believed that social dialogue has two characteristics. The first is intersubjectivity, where two individuals who may have different understandings of a task reach a shared understanding by adapting themselves and each other's points of view. The second is referred to as scaffolding. That is, it involves providing support to students to help them master skills beyond their current level. As learners become more competent, the scaffolding is gradually removed, allowing them to perform tasks independently. With this, Vygotsky's theory encourages collaborative and cooperative learning between children and teachers or peers. The next is language, he argues that language not only reflects but also shapes our thought processes. Through language, individuals can communicate with others, regulate their behavior, and engage in higher-level thinking. Apart from that, internalization is learning that begins as a social process and is then internalized by the individual. Through social interactions and the use of cultural tools, individuals internalize knowledge and skills, making them their own. Therefore, Vygotsky's sociocultural theory emphasizes the relationship between individuals and their social and cultural contexts. This highlights the

importance of social interactions, cultural tools, and collaborative learning experiences.

2.2 Characteristics of Project-Based Learning

Active learning activities and involving projects are not all mentioned as PjBL. Project-Based Learning (PjBL) has characteristics that distinguish it as an innovative and effective learning approach. In this case, it is important to understand its characteristics. The five criteria are centrality, driving question, constructive investigations, autonomy, and realism (Thomas, 2000; Mihardi et al., 2013).

1. *The project is central, not peripheral, to the curriculum. This criterion has two corollaries.* First, the project is a curriculum. In PjBL, projects are the core teaching strategy, and students struggle to learn core concepts of material through projects. Second, is focusedness, which means that if students learn something outside the curriculum, it is not categorized as PjBL.
2. *PjBL projects are focused on questions or problems that "drive" students to encounter (and struggle with) the central concepts and principles of a discipline.* The definition of a project for students must be made in such a way that a relationship is established between the activity and the conceptual knowledge behind it. Projects are usually carried out by asking questions whose answers cannot be determined. Projects in PjBL can be designed thematically or by a combination of topics from two or more subjects.
3. *Projects involve students in a constructive investigation.* Investigation can be a design process, decision-making, problem discovery, problem-solving, discovery, or model development process. The core activities of the project should involve the transformation and construction of knowledge (new knowledge or skills) on the part of the students. If the core activities of the project do not represent a “level of difficulty” for the student or can be performed with the application of readily learned information or skills, the project in question is nothing more than an exercise and is not a PjBL project in question.
4. *Projects are student-driven to some significant degree.* The point of the project

is not that it focuses on the teacher in the form of a rule text or already in the form of an assignment package. For example, laboratory assignments and learning booklets are not exemplifying of PjBL. PjBL prioritizes independence, choice, non-rigid work hours, and student responsibility over traditional projects and traditional learning

5. *Projects are realistic, not school-like.* The characteristics of the project provide authenticity to the student. These characteristics may include the topic, the assignment, the role the student plays, the context in which the project work is performed, the product produced, or the criteria by which the products or performance are assessed. PjBL involves real-life challenges, focuses on authentic (not simulative) questions or problems, and the solutions have the potential to be applied in real fields.

Based on the literature review that has been done by Thuan (2018), PjBL has the following characteristics: cooperative learning (PjBL promotes cooperative learning where students work together in groups to complete projects.), student-centeredness (PjBL places students as active agents of learning. They have a central role in planning, implementing, and assessing their projects.), life-long learning (PjBL prepares students for lifelong learning by equipping them with research and problem-solving skills that can be applied in a variety of contexts throughout life.), self-directed learning (PjBL encourages students to take the initiative in managing their learning process, including planning, research, and reflection.), motivation (PjBL appeals to students' intrinsic motivation through projects that are meaningful and directly related to real life.), autonomy (PjBL gives students the autonomy to manage their own time, resources, and learning process.) and creativity (PjBL allows students to develop their creativity through unique approaches and solutions in completing projects.), which are appropriate and fruitful for language teaching and learning.

2.3 Principles of Project-Based Learning

The principles underlying Project-Based Learning (PjBL) not only reflect a learning method but also become the foundation for developing deep understanding and practical skills. To accomplish consistently deep and meaningful learning,

PjBL has seven main standards (Boss, S., and Larmer, 2018; Hamidah et al., 2020);

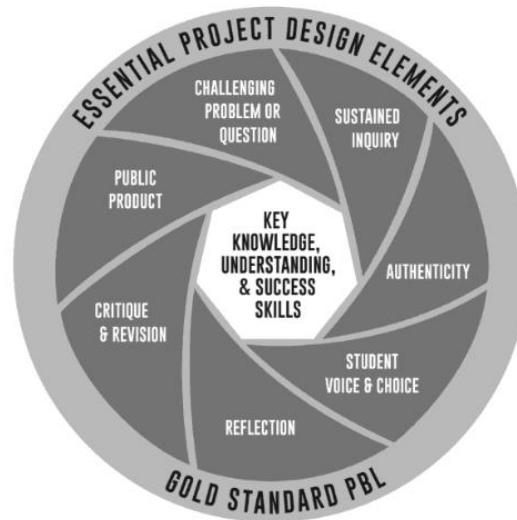


Figure 1. Main standard PjBL

1. Challenging Problem or Question

Learning begins with problems and questions that enable students to learn about what must be prepared in an inquiry process, the types of inquiry activities that must be chosen, the tools that must be prepared, and the steps that must be taken to solve problems or answer questions.

2. Sustained Inquiry

This is the principle of a continuous investigation process. Giving problems and questions at the beginning of learning is the starting point of the inquiry process where the inquiry process itself can improve students' critical thinking and problem-solving, collaboration, and self-management skills.

3. Authenticity

The authentic principle in project-based learning is connecting learning with real-life contexts. In this case, there are three things to apply authentic principles in project-based learning, including:

- a. Authentic in the project. The projects designed by students are based on what they experience in the real world.
- b. Authentic in the activity and equipment used in the project. During the project, students carry out activities similar to real life.

- c. Authentic in the impact of project results. The project results are expected to have an impact on the environment.

4. Student Voice and Choice

The principle of student voice and choice in project-based learning requires students to express ideas and determine their choices during the process of working on a project.

5. Reflection

The principle of reflection in project-based learning does not only apply to students but also to teachers. This activity aims to observe the effectiveness of the activities carried out in the inquiry process, to find out the problems faced during the project, and how to overcome the problems found during the process. This reflection also helps students to develop their metacognitive knowledge in the learning process.

6. Critique and Revision

The principle of critique and revision is a common thing to do during a project. Group members, teachers, or even experts can provide criticism and suggestions to facilitate students finding inappropriate things in the project results and revising them accordingly.

7. Public Product

The public product principle is the publication of a product from the results of a project. Project-based learning provides students with the opportunity to display or present the results of their projects in front of the class or even in a wider environment.

Moreover, Haatainen & Aksela (2021) adapted from Aksela & Haatainen, (2018); Condliffe et al (2017), that project-based learning has design principles Such as student learning goals, the centrality of the project, context, project artefacts, collaboration, construction of knowledge, scaffolding instruction, assessment publicity.

Based on the steps and principles of the project-based learning model above, it can be said that the implementation of project-based learning has its provisions and objectives. Among these are projects that students can complete well and can

practice critical thinking, problem-solving, teamwork, and self-management skills. The application of a good project-based learning model must also be carried out while taking into account the objectives of the courses taught and current needs.

2.4 Syntax of Project-Based Learning

There are six Project-based Learning (PjBL) syntaxes as proposed by (Lucas, 2005; Kemdikbud, 2014). That are;

Phase 1: Start with Essential Questions

Learning begins with essential questions. These are questions that can assign students to carry out an activity. The questions are prepared by taking topics that are relevant to real-world realities and starting with an in-depth investigation. These questions should guide students to create a project. Such questions are generally divergent, provocative, challenging, require high-order thinking skills, and are related to students' lives. In this step, the teacher must ensure that all important material has been completed and that the topics raised are relevant to the students.

Phase 2: Design Project

In this case, planning is carried out by teachers and students to work collaboratively. Some content should be included during the design stage. Planning contains the rules of the game, such as teachers needing to provide information about project roles. Then, choose activities that can support answering important questions. Furthermore, materials and tools can be used when carrying out the project and activities after completing the project. These roles are very important to reduce misunderstandings between students and teachers.

Phase 3: Create Schedule

In this phase, teachers and students collaborate to prepare a schedule of activities to complete the project. The activities at this stage are to develop a schedule of activities to complete the project, determine project deadlines, encourage students to plan new ways, guide students to explore their projects and creativity as they complete projects, and ask them to explain the results. In this stage, it can provide opportunities for students to become actively involved in the learning process and various learning activities. In addition, the agreed schedule must be mutually agreed upon so that teachers can monitor learning progress and work on projects outside

of class.

Phase 4: Monitoring the Students and Progress of the Project

One of the teachers roles is to monitor student projects. This means that the teacher is a facilitator for students throughout the project process. This can help students if their project is experiencing difficulties. Then, to make the monitoring process easier, a rubric was created that could show all the activities carried out by students and each students abilities and understanding of the material and projects.

Phase 5: Assess the Outcome

In this phase, assessments are carried out to assist teachers in measuring achievement of competency standards. Apart from that, the teacher also provides feedback to determine students understanding of the material. This can help teachers to plan strategies for the next meeting.

Phase 6: Evaluation of the Experiences

At the final stage of the learning process, teachers and students reflect on the activities and results of projects that have been completed. The reflection process is carried out both individually and in groups. At this stage, students are asked to express their feelings and experiences while completing the project. Teachers and students develop discussions to improve performance during the learning process so that new findings (new inquiry) are found to answer the problems raised in the first learning step.

2.5 Project-Based Learning Implemented in English Classroom

Implementing Project-Based Learning (PjBL) in English classes can be a very effective approach to improving students' language understanding, communication skills, and creativity. This is as Halim et al. (2023) one of the main advantages of PjBL in EFL is that it allows students to utilize language in real-world situations. Students in PjBL classes work on a project that requires them to apply their language skills in real, real-world situations (Halim et al., 2023). According to Poonpon (2017); Aghayani, B., and Hajmohammadi (2019), research on 47 undergraduate students revealed that PjBL improved students' English skills in language classes. Students can understand the relevance of the language skills they learn and how they apply in the real world, thus making the learning process more

relevant and interesting for them. For example, Ramirez (2014); Aghayani, B., and Hajmohammadi (2019) investigated the influence of PjBL on students written production in EFL classes. He found that PjBL is an effective method that improves students writing skills and that EFL students can improve the accuracy of their writing skills. Therefore, project-based learning provides students with the opportunity to learn according to real life, which can produce permanent knowledge (Gülbahar & Tinmaz, 2006). In this way, PjBL can be said to have a positive impact, so this is of interest to researchers.

However, apart from that, there are also challenges in using PjBL itself. According to Halim et al. (2023), the challenge faced is the difficulty of students managing time to work on projects. Since each member has their activities, it is very difficult to determine time and complete the project within the scheduled time. Another challenge is that certain team members do not contribute to the completion of the project. They were a little unsure of what to do. This is supported by Flemming (2000); Harmer, N & Stokes (2014), that group work has been identified as the most significant challenge for students. Apart from that, the challenges in using PjBL itself are not only experienced by students but are also experienced by teachers. This is according to Blumenfeld et al, (1991), which states that PjBL may not be effective for teaching large classes. Large classes are very common in Indonesian schools. A class may consist of more than 40 students, so this presents a challenge for teachers to motivate students, make them concentrate, and help students work cooperatively. Apart from the challenges faced by teachers and students, logistical problems can also provide challenges in implementing PjBL. Thomas (2000) lists several problems that can hinder the successful implementation of PjBL, such as inadequate resources, inflexible schedules, and class size and composition. Inadequate resources refer to the lack of tools and materials necessary for PBL activities. With this, various challenges may occur during the implementation of PjBL whether it is limitations in providing the necessary resources to support project-based learning. Or work collaboratively and communicate between members of the team.

2.6 Study of Relevant Research

This research is quite relevant to previous research conducted by Hussein (2021), which focused on some of the implementation challenges associated with project-based learning, namely ensuring collaboration between students enrolled in project assignments. The research results show that collaboration challenges can be traced to conflicting priorities between students as well as uncertainty in project assignments. In addition, research by Pucher and Lehner (2011) suggests that due to a lack of experience in project management, students who carry out project-based learning often face problems due to failure to identify and manage various risks associated with project-based learning itself. Even Mitchell (2020), in their research, showed that self-confidence is the main characteristic of carrying out project-based learning activities.

Judging from the results of the relevant research mentioned previously, several things challenge students in project-based learning in a course. So, it is necessary to find effective solutions to overcome the challenges themselves. Therefore, this research will focus on an in-depth investigation of the challenges experienced by students in project-based learning and finding effective solutions to overcome these challenges.