CHAPTER 2

LITERATURE REVIEW

This chapter briefly explains some theories that support the study. It also presents the literature regarding project-based learning, mini-research, the theory, and highlights the relevant study.

2.1 Project-Based Learning

2.1.1 Definition of Project-Based Learning

The project-based learning approach is a learning process that is centered on students and teachers as facilitators. In this case, students are involved in decision-making, teamwork, and product orientation in project-based learning (Handrianto & Rahman, 2018). On the other hand, Sora et al. (2021), stated that project-based learning is a teaching methodology requiring learners to research, comprehend ideas, and produce projects. Therefore, it can be interpreted as a type of learning that culminates in creating a project and allows students to participate in the production process.

Project-based learning aims to increase students' knowledge, understanding, and skills. The skills that students can develop are very diverse, Syahril et al. (2022) highlighted several skills that describe project-based learning, namely critical thinking skills, creativity, collaboration, and communication. These skills are often known as the 4Cs skills which are related to the competencies of 21st-century skills. Apart from providing improvements in academic abilities, this approach also provides meaningful and in-depth learning experiences and prepares students to face challenges in real-life contexts with more diverse skills.

Moreover, Project-based learning has many benefits, Petrovic et al. (2020), explained the additional valuable benefits for students, namely: a) Students become more motivated in the learning process; b) Increase students' understanding; c) Students can solve problems; d) Develop critical thinking, communication, and collaboration; e) Students can be responsible and self-manage; and f) Improve student skills. In general, project-based learning assists students in getting ready for real life, particularly in terms of career

preparation. Besides that, Hamidah et al. (2020) pointed out the challenges of project-based learning. They said that there are several obstacles that teachers must pay attention to in implementing project-based learning, namely the limited choice of essential competencies, selection of group members, and limited time for consultation. Therefore, commitment and good communication are needed to succeed in the project creation process.

2.1.2 Characteristics of Project-Based Learning

In project-based learning, students must have great independence and responsibility. Thomas (2000), has five essential characteristics of project-based learning, namely:

a) Project-based learning is central

This means that project-based learning is the central approach to learning. In this context, students can carry out learning processes through exploration, collaboration, and problem-solving to create relevant projects that are meaningful and in-depth learning for students.

b) Project-based learning focuses on a question or problem

This criterion allows students to solve problems more actively, which helps them gain comprehension and improve their abilities.

c) Project-based learning engages students in constructive inquiry

In this criterion, students are directly involved in completing a project that allows them to explore, investigate, and build their understanding of a particular topic.

d) Project-based learning is autonomous

This criterion explains that students have significant control in designing, managing, and implementing learning projects.

e) Realistic project-based learning

This criterion refers to projects undertaken in learning that reflect real-world situations realistically. This indicates that project-based learning is designed to provide a learning environment that may be found in real life.

2.1.3 Steps of Project-Based Learning

In project-based learning, several steps can be followed to complete a project, often called syntax. According to Diana et al. (2021), the syntax in project-based learning consists of planning, creating, managing, and evaluating. This is in line with Hamidah et al. (2020), who outlined the procedures for developing project-based learning. The three general steps of project-based learning, according to them, are as follows:

a) Project planning

This stage involves five activities that need to be completed in creating project-based learning, namely: 1) Choosing a project topic; 2) Pre-communicative exercises; 3) Putting crucial questions; 4) Creating project plans; and 5) Establishing a project timeline.

b) Creating a project

At this stage, students only focus on one activity, activities in completing the project.

c) Project reporting

In the final steps, the reporting step includes assessing the project outcome and evaluation.
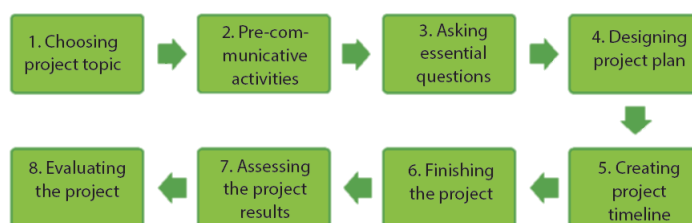

Figure 1. The Scheme of Project-Based Learning Steps.

(*Source*: Hamidah et al. 2020: 20)

2.1.4 Principles of Project-Based Learning

Even though project-based learning focuses on students, teachers are equally important in the educational process. Therefore, teachers must understand the main principles of implementing project-based learning. According to Larmer et al. (2015), explain seven essential principles that must be considered when managing project-based learning. These principles are

the gold standard of project-based learning, with learning goals for comprehension, knowledge, and ability to succeed.

Figure 2. Gold Standard Project-Based Learning

(*Source*: Larmer et al. 2015: 34)

a) A challenging problem or question

This principle is based on a problem or question that must be solved and answered. Hamidah et al. (2020) also stated a similar thing, claiming that problems and questions allow students to learn about the processes that must be undertaken to solve a problem or provide an answer.

b) Sustained inquiry

This principle is a continuous process of inquiry. According to Hamidah et al. (2020), the sustained inquiry process begins with providing problems and questions at the beginning of learning.

c) Authenticity

This project is designed based on the authenticity of the real-life context experienced, the authenticity of the equipment used in the project, and the authenticity of the impact of the project results.

d) Student voice and choice

This principle allows students to make choices with their voices and express their ideas, enhancing their critical thinking and problem-solving abilities.

e) Reflection

In the reflection, teachers and students can reflect on their learning to assess the tasks' success, including the difficulties encountered and solutions found.

f) Critique and revision

Under the criticism and revision concept, students, instructors, or others can offer critiques and ideas to enhance project outcomes.

g) Public product

Based on this principle, students can present the results of projects they have worked on in front of the class or even in a larger setting.

2.2 Project-based Socio Constructivism

Project-based learning is a model based on the social constructivism theory developed by Russian psychologist Lev Vygotsky in 1978. In his theory, Vygotsky argued that learning is not just an individual problem but develops in a social environment. Therefore, this theory plays an essential role in the social context as a center for learning.

The central concept of the most famous theory of social constructivism is the zone of proximal development (ZPD). This concept describes an environment that allows students to develop cognitively through social assistance and appropriate teaching by referring to the level of development a child can achieve independently or with the help of more competent adults or peers. In this concept, learning will be more effective if someone cannot complete a task or understand a concept independently, but they can do it successfully with help from the people around them. This is in line with the opinion of Vygotsky (1978), who said that teachers can stimulate this zone by providing many opportunities for students to respond to skills and abilities they can use. This will allow students to internalize knowledge or skills from the surrounding environment into their understanding and skills.

Social constructivism theory can increase learning effectiveness as the primary basis for implementing project-based learning. This idea emphasizes

how students actively participate in gaining experience (Handrianto & Rahman, 2018). Furthermore, Kokotsaki et al. (2016), revealed that project-based learning is one element that encourages social learning because it prepares students for 21st-century skills, including collaboration, interaction, and teamwork. In this research context, the social constructivist theory is correlated with project-based learning in the Grammar in Multimodal Discourse class. In this course, most of the projects were done collaboratively which involved some student interaction while finishing the project. Through these activities, the skills mentioned above were explored and interaction between students was in line with the socio-constructivism theory.

2.3 Mini Research Project-Based

Mini-research is a scientific paper based on research. According to Listiani & Dirgantoro (2023), mini-research can be used to give learning tasks. Through mini-research, students independently design a project, starting by identifying problems, then looking for solutions to problems and exploring themselves to find information. There are several stages that students can follow to complete a mini-research. According to Listiani & Dirgantoro (2023), the steps involved in carrying out a mini-research include: (1) Determining the research topic, (2) Creating a research flow, (3) Developing research instruments, (4) Collecting data and analyzing research data, (5) Presenting research results, and (6) Make a report.

Mini-research can be an alternative for increasing competence. Haryono & Adam (2021), explain that mini-research can train scientific writing skills. In addition, mini-research can also develop students' knowledge through critical thinking and in the process of solving existing problems (Amrullah et al., 2022; Anggereini et al., 2023). Consequently, since mini-research may benefit students' academic growth, it can be said that it is a helpful tool for raising student competency.

In this research context, mini research in Grammar in Multimodal Discourse class is a learning approach where students carry out small-scale research together with their group members. The focus of this mini-research

was to ask students to analyze multimodal discourse represented in various media, multimedia, and hypermedia. Besides that, there is an analysis of the results of multimodal discourse on the pedagogical issues and paradigmatic shifts in English language teaching.

2.4 Study of Relevant Research

The first study was conducted by de la Puente Pacheco et al. (2019), who analyzed students' perceptions of project-based learning techniques compared to more conventional teaching techniques. This research study was conducted at Del Norte University, Colombia. They claimed that there is a relationship between how project-based learning is implemented and students' perspectives, critical thinking abilities, and analytical skills. However, their results also lend credence to the notion that problem-solving abilities and collaboration will be advantageous at the end of the course. Furthermore, the findings show that not all cross-curricular competencies see a substantial impact from project-based learning in terms of learning outcomes. It can be said that project-based learning is effective in only a few areas but does not affect overall learning outcomes.

Second, Amin & Shahnaz (2022) also discuss the advantages and difficulties of project-based learning. This research was conducted on 45 exchange students from private universities on the island of Java who took Organizational Culture courses at Jambi University. Data collection was carried out by distributing questionnaires and semi-structured interviews with lecturers. As a result, they found 17 benefits from using project-based learning, one of which was that students became more active in class, understood the lesson material more efficiently, became more independent, etc. In addition, there are six challenges faced by lecturers and students, such as problems working in groups, online learning environments, searching for additional material independently, less intensive lecture consultations, difficulties in choosing exciting topics, and problems with project deadlines. In conclusion, project-based learning has many advantages and difficulties to overcome during learning.

Furthermore, Rachmawati et al. (2024) have conducted research in the field of higher education in the Indonesian context. Based on data collected from observations and interviews, the research results showed that the use of project-based learning is considered as one way to stimulate students' skill development. The implementation of this approach facilitated students' problem-solving skills, critical thinking skills, communication skills, collaboration skills, and information literacy.