

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Theoretical Framework**

##### **2.1.1 Project-based Learning**

###### **2.1.1.1 Description of Project-based Learning**

Project-based learning is a teaching method that empowers students to lead their learning through inquiry as they collaborate to conduct research and develop projects that represent their knowledge (Bell, 2010). Typically, students are required to study a particular phenomenon and a real subject in detail using scientific practices in order to integrate their knowledge and present their results they learned (Altun et al., 2009; Kubiátko & Vaculová, 2011). Thus, it can be concluded that project-based learning is a student-centered teaching method that provides students with a more meaningful learning experience through the emphasis of real-world projects and collaboration.

Furthermore, Allison (2018) states that project-based learning encourages students to produce an end product as a way to solve a problem. Those products can be public speaking engagements, written reports, a manual or file, technology-based presentations, etc. (Bouqetyb, 2021). Thus, project-based learning specifically focuses on learning by doing, experimenting, problem solving, teamwork, social skills, understanding, collaboration and partnership, as well as taking responsibility.

In project-based learning, the teacher is no longer considered the main source of information and dominates most of the talking time in class, but rather as the designer, guide and facilitators (Aldabbus, 2018; Pan et al., 2020). Teachers guide students in working on their projects and students are in full control of their projects and learning (Ngadiso et al., 2021). Thus, teachers are

expected to be able to provide adequate and effective advice, direction and feedback to students.

In practice, the students will construct their own knowledge when they work together while discussing, sharing information and ideas to complete project assignments with the teacher's guidance. Therefore, teachers should also provide learning environments that allow students to take responsibility for their learning. They should be given the opportunity to interact with their peers, exchange ideas, and ask questions, which helps them to develop their skills and gain new knowledge (Wahbeh et al., 2021).

#### **2.1.1.2 Characteristics of Project-based Learning**

Each learning model has its own characteristics. These characteristics serve as elements that distinguish one learning model from another and these characteristics become components of the learning model. According to Krajcik and Shin (2014), there are six characteristics of project-based learning:

##### **a. Driving Question**

The first characteristic of project-based learning is driving question. This is the most common characteristic that is widely known (Miller & Krajcik, 2019). The driving question is the question that guides the work, gives it perspective, and serves as a reminder to students of the goals of the many tasks contained in the unit project (Hasni et al., 2016) (Hasni et al., 2016). Thus, it will create continuity and cohesion between the final product created and the driving questions asked (Mentzer et al., 2017). Relevant knowledge that is grounded in a practical scenario and meaningful is all included in the driving question. In addition, it also provides a framework for students to use and investigate learning objectives and scientific methods and serves to organize and direct the project's activities and offers continuity and consistency to the entire range of project activities (Krajcik & Blumenfeld, 2006).

b. Learning goals

Project-based learning should provide students with the opportunity to acquire new curricular subjects and competencies. Therefore, rather than being a stand-alone teaching strategy, project-based learning ought to be the main teaching strategy used in a course (Condliffe et al., 2017; Parker et al., 2013). In this case, Chen and Yang (2019) suggest that in order for students to produce much better academic performance, project-based learning should be used at least two hours per week.

c. Scientific Practices

Students should be able to organize and conduct their own research within the project-based learning unit (Mentzer et al., 2017). Students will practice applying scientific methods when they create research questions and techniques. They will also improve their cognitive abilities and deepen their comprehension of the subject (Krajcik & Shin, 2014; Novak & Krajcik, 2020). In addition, students also should be able to present the question because presenting questions is an essential component of scientific research (Chin & Osborne, 2008), so even though a teacher may select the driving question, students should be allowed the opportunity to study their own questions within the parameters of the driving question (Krajcik, 2015).

d. Collaboration

According to Krajcik and Blumenfeld (2006), project-based learning gives teachers, students, and community members a chance to work together to explore concepts and questions. In simple term, project-based learning encourages students to work together to conduct research. This collaboration is carried out to ask questions, write explanations, make inferences, understand information, discuss data, and present findings (Krajcik & Blumenfeld, 2006). Thus, it can motivate students and give them an idea of how scientists work and allow students to develop their communication skills (Bestelmeyer et al., 2015) as well as encourage students to practice sharing responsibilities and roles (Blumenfeld et al., 1991). Moreover, when students collaborate, they can develop common understandings of scientific concepts and the nature of the

field as they converse with peers and adults outside of the classroom (Krajcik & Blumenfeld, 2006).

e. Using Technological Tools

The use of technology is an important part of project-based learning because it can help improve students' academic achievement in project-based learning (Chen & Yang, 2019). However, the use of technology in project-based learning should, for the most part, be viewed as a tool, not as a primary goal. (Hasni et al., 2016). Therefore, it is not required to be the main attraction.

f. Creating an Artefact

One of the important components of project-based learning is the creation of an artefact or final product from the project that has been designed and this must answer the driving question posed (Krajcik & Shin, 2014). Grant and Branch (2005) states that the production of artifacts, exhibits, and research papers in project-based learning activities demonstrated that students could go from being novices to experts in the subject matter and that they combined some of their learning skills in the creation of the artifacts. In addition, through the production of artifacts, teachers can also see the results of students' cognitive work and their level of understanding (Novak & Krajcik, 2020). Thus, the artifact should be meaningful and represent the student's level of understanding (Krajcik & Shin, 2014; Novak & Krajcik, 2020). Contextually, the artefact of this research focus which is Grammar in Multimodal Discourse course that implements project-based learning is the small-scale research on multimodality issue in the form of scientific articles that should be presented by the students through online platform such as Zoom and YouTube.

Based on the characteristics, it can be concluded that project-based learning requires students to create an artifact or final product at the end of the learning process that can answer driving questions or essential questions that have been compiled at the beginning of learning process. It usually takes more than one meeting because project-based learning should encourage students to gain knowledge, abilities, and more meaningful learning experiences through the process of interaction that occurs through collaboration between students

and students as well as students and teachers. Thus, teachers and students usually will jointly compile project planning and schedules at the beginning of the learning process before the students are required to compose their project that applies a scientific learning process while still utilizing the use of technological tools.

### **2.1.1.3 Learning Stages of Project-based Learning**

The George Lucas Educational Foundation (2005) in Nurohman (2015) developed project-based learning stages as follows:

a. Giving the Essential Question

At this stage, learners are given essential questions that can task them to do an activity. The questions asked are those that are relevant to the real-world topic and the learners.

b. Designing a Plan for the Project

At this stage, students and teachers plan the project together so that students are supposed to experience a sense of 'ownership' over the project. Planning includes understanding the resources and tools available to help finish the project, as well as choosing activities that can assist in providing answers to important questions by incorporating a variety of potential themes.

c. Creating a Schedule

At this stage, the teacher and learners collaboratively develop a schedule of activities to complete the project.

d. Monitoring the Students and the Progress of the Project

At this stage, the teacher should act as a mentor for students in completing their project and it is recommended to create a rubric that can record all important activities.

e. Assessing the Outcome

The stage is conducted to assist the teacher in measuring the achievement of standards, play a role in evaluating the progress of each learner,

provide feedback on the level of understanding that learners have achieved, and assist the teacher in developing the next learning strategy.

f. Evaluating the Experience

Both teacher and students evaluate the project's activities and outcomes at the conclusion of the learning process. The process of evaluation is carried out in both individually and in groups. At this stage, teacher and students do a discussion and the students are asked to share their thoughts and feelings in order to enhance performance during the learning process and ultimately find a new finding (new inquiry) to address the issues raised in the initial learning phase.

All stages must be applied properly so that learning goals that are structured to help students gain knowledge, abilities, and meaningful learning experiences can be achieved. In this case, the role of teachers in monitoring the learning process of students in working on their projects is very important. With monitoring from teachers, teachers can see student performance and development. In addition, teachers can also easily detect students who are not working and studying optimally. Thus, it will make it easier for teachers to assess student performance and outcomes.

#### **2.1.1.4 Benefits of Project-based Learning**

Several studies have found that project-based learning offers many benefits for students not only in their learning but also in their 21st-century skills. Atikah et al. (2022) mentions that project-based learning enables students to take an active role in their learning process. Through project-based learning, students have the opportunity to express all of their thoughts and their difficulty in learning process. Thus, project-based learning is widely said to affect student motivation in learning (Chu et al., 2017; Wang, 2016; Zaafour & Salaberri-ramiro, 2022).

Project-based learning is believed to make the teaching and learning process more interesting (Ngadiso et al., 2021). Thus, many studies have shown

improvements in the students' learning process and students' learning outcomes. It was found to assist the students in improving their skills, particularly in speaking, writing, grammar, and vocabulary (Atikah et al., 2022). In addition, students also experience the improvement in their engagement because project-based learning enables them to discuss and share knowledge and information (Almulla, 2020). Moreover, Apriliani and Listyani's (2021) research showed that students experience the dominant improvement in their speaking skills. They also become more confident and able to improve their collaboration skills because the project was done in a group.

Furthermore, the findings of Wahbeh et al.'s (2021) study showed that project-based learning enhances language learners' interpersonal and collaborative abilities by fostering better communication between them and their teachers. Then, the other life skills that students perceived are shown in the study of Meyer and Wurdinger (2016) which includes the improvement in the time management, collaboration, communication, and self-directedness skills. Generally, the most important life skills that are perceived by students include responsibility, self-directedness, collaboration, communication, creativity, and work ethic.

### **2.1.2 English Language Learning**

The importance of learning English cannot be denied since English is a globally spoken language that serves as a bridge across diverse cultures, facilitating communication and understanding. According to O'Brien (2006), more people are studying English today than at any other time in history, as English plays a vital part in human life for communication. In addition, Richards (2015) believes that learning English is necessary for today's generation to adapt to global communication, literature, media, and job in the present and future.

According to Brown (2000), the English learning process consists of acquiring subject knowledge or skills through study, experience, and instruction. It occurs when a learner gains knowledge of a topic or subject by processing information through reading, listening, thinking, memorizing facts, relating new facts to existing knowledge, analyzing problems, and developing psychomotor skills (Padwick, 2010). Furthermore, Padwick (2010) stated that learning English is a person's process of gaining mastery of information absorption in the cognitive, affective, and psychomotor domains. It involves five stages of learning English such as doing something, recalling what happened, reflecting on what was done, drawing conclusions from the reflection, and using those conclusions to inform and prepare for future practical experience. In conclusion, the process of learning English is an activity in which a person acquires English language proficiency which includes the development of skills in listening, speaking, reading, and writing to understand and use the language effectively and involves mastering grammar, vocabulary, pronunciation, and idiomatic expressions, which enable a person to communicate clearly and confidently in a variety of situations.

According to Brown (2000), there are several components of the English learning process, which are as follows:

- a. Attention, which is the first step in learning something. Most of us have a natural tendency to pay attention to things that are interesting or exciting. The teacher's job is to make the lesson relate to the students. They should make connections between the lesson and the students' lives.
- b. Memory, which is a complex process involving three systems that enable the reception, use, storage and retrieval of data. Students who have memory difficulties may need both verbal and written directions and examples that are expected to help all students.
- c. Language, which is the primary tool for communication and receiving information in school. Conversely, language problems can negatively impact a student's ability to communicate, understand and retain written

and spoken information, maintain social relationships, and understand what others are saying.

- d. Organization, processing and organizing information simultaneously and successively. Simultaneous processing orders or organizes data in space, while successive processing sorts or organizes data in time and order.

Contextually, one form of implementation of English language learning is shown in the Grammar in Multimodal Discourse class. The term "grammar in multimodal discourse" refers to the study of grammar in the context of multimodal discourse analysis, which examines the construction of meaning through the use of many semiotic resources, including text, images, and other means of communication. It looks at how many modes interact to produce semiotic meaning. Then, it has been used in a variety of contexts, such as language acquisition, marketing, and educational institutions (Yang & Zhang, 2014).

Abdullah (2023) explains that Grammar in Multimodal Discourse (also known as GiMD) course theoretically arose in response to the prevailing paradigm, which views meaning-making as a semiotic process integrated in sensory modalities expressed in texts, discourses, and multimodal events, in addition to linguistic components. This course intends to investigate how representational, interactive, and compositional meanings are interpreted multimodally in a repertory of modalities and semiotic sources. It is based on social semiotics and the educational context of language education.

Students who complete the course will also have a broad understanding of both macro and micro analytical methods to multimodal texts. Furthermore, by emphasizing how each mode communicates meaning both simultaneously and discretely, the course helps students practically understand multimodal texts, discourses, and events. As a result, students must be able to recognize semiotic sources that are integrated across sensory modalities, evaluate multimodal discourse as it is portrayed in different media, multimedia, and hypermedia, and connect the findings of multimodal discourse analysis to challenges related to education. Moreover, it is expected of students to be able

to absorb the idea that English language acquisition has changed from a monomodal to a multimodal perspective. In the subject of English education, students are required to possess multimodal literacy as one of the literacies that will benefit them as social actors (language practitioners, learners, or researchers) (Abdullah, 2023).

Furthermore, the main objective of Grammar in Multimodal Discourse is students are able to analyze, combine, and evaluate multimodal discourse in various multimodal texts in English using an analytical framework based on the Social Semiotics approach to develop multimodal literacy manifested through data analysis and English language teaching in a responsible, quality, and measurable manner. To achieve the main objectives of this course, there are several sub objectives that must be achieved by students. The first sub objective is elaborating semiotic resources (e.g. language, images, music, gestures and architecture) integrated across sensory modalities (e.g. visual, auditory, tactile, olfactory, gustatory, kinesthetic) in multimodal texts, discourses and events. The second is analyzing multimodal discourses represented in various media, multimedia and hypermedia (e.g. advertisements, newspapers, textbooks, TV programs, social media, websites and other digital platforms) based on MDA concepts, i.e. semiotic, intersemiotic and resemiotic sources. The third is developing multimodal literacy, i.e. meaning is not formed by a single semiotic source (monomodal) but multimodal. Then, the last sub-objective that achieved by implementing project-based learning is designing small-scale research in the form of scientific articles and present them with independent, quality, and measurable performance (Abdullah, 2023).

### **2.1.3 21st Century Skills**

According to Trilling and Fadel (2009), 21st-century skills consist of 7 points. These are commonly referred to as the 7Cs skills which include:

a. Critical thinking and problem solving

According to Trilling and Fadel (2009), critical thinking and problem-solving are crucial elements of 21st-century skills. They emphasize the value of these abilities in equipping people for success in the 21st century, especially in light of education and the changing needs of the international workforce. Along with communication, teamwork, creativity, and innovation, their framework for 21st-century learning lists critical thinking and problem solving as among the skills most in demand in the 21st century. It emphasizes how important it is to have critical thinking and problem-solving skills in order to navigate the complexity of today's environment and take on global concerns. In conclusion, Trilling and Fadel's (2009) research highlights the significance of critical thinking and problem solving as essential skills for people to prosper in the 21st century, stressing its applicability to education as well as the changing nature of the work and social landscape.

b. Creativity and innovation

According to Trilling and Fadel (2009), people need to be creative and innovative in order to contribute to the creation of new concepts, goods, and services as well as adjust to the quickly changing global environment. These abilities are especially crucial in industries like science, technology, and business where innovation is the engine of development and advancement. Through the integration of creativity and innovation into the educational process, students can build a solid basis for success in the 21st century and become more equipped to handle challenging issues (Kivunja, 2015).

c. Collaboration, teamwork, and leadership

In the context of 21st-century skills and education, Trilling and Fadel (2009) stress the need of leadership, teamwork, and collaboration. Their research emphasizes how crucial it is to teach these abilities clearly in order to give students the tools they need to succeed in contemporary society. In a variety of work environments, teamwork and collaboration are crucial for solving non-routine issues and promoting creativity (Stephen et al., 2017).

Furthermore, collaboration is a common instructional method used in the educational setting to promote more effective and efficient learning (Stephen et al., 2017). Then, leadership, particularly collaborative leadership, plays a crucial role in creating an inclusive environment that energizes teams, releases creativity, and cultivates a work culture that is both productive and joyful. In this case, collaborative leaders seek out a diversity of opinions and ideas among teammates to build strategies and solve problems, leading to increased employee engagement and a sense of trust (Samur, 2022).

d. Cross-cultural understanding

A crucial component of 21st-century skills is cross-cultural understanding, which entails minimizing barriers between various ethnic groups, cultures, and ideas. These barriers include stereotypes, preconceptions, and prejudices that skew our perception of others and obstruct productive collaboration (Law, 2021).

e. Communications, information, and media literacy

Trilling and Fadel (2009) assert that 21st-century skills are intimately related to communications, information, and media literacy, all of which are critical abilities for surviving in the contemporary world. In their work, the authors stress the significance of imparting these skills explicitly to students in order to prepare them for success in the contemporary world.

f. Computing and ICT literacy

Computing and ICT literacy are necessary for surviving in the modern world, especially when it comes to education and the quickly changing digital environment. With these abilities, people may address informational problems and contribute to an increasingly digital society by making effective use of networks, communication tools, and digital technology (Malanga et al., 2022).

g. Career and learning self-reliance

According to Trilling and Fadel (2009), career and learning self-reliance are essential 21st-century skills that empower individuals to take control of their careers, make informed decisions, and adapt to changing circumstances. It describes an individual's ability to manage their own career and advancement

while still being dedicated to the success of the organization. Continuous learning, confidence, and a willingness to take the lead are required, as well as the ability to provide skills that are in line with business requirements and provide strong performance in support of organizational objectives (Fiske, 2009). It is imperative for organizations to foster learner self-reliance by offering the professional development and career tools required to enable learners to become self-reliant. Acquiring self-reliance entails being authentic, exercising judgment on one's own behalf, and upholding one's own moral principles (Moore, 2019).

All of these 21st-century skills are essential to master in order to adapt, survive and succeed in a changing society, especially in relation to education and the changing needs of the international workforce (Trilling & Fadel, 2009). Students need to be prepared to be able to master these skills so that students do not face difficulties in their adaptation process and the language proficiency they have gained from English learning process can be used to survive and succeed in education and meet the needs of the 21st-century especially the needs of international workforce. In this case, project-based learning is said to be effective to equip students with 21st century skills and enhance learning since it can foster a feeling of community and collaboration among students and teachers, promote student-centered learning, connect theory to practice, and give teachers more freedom in their instruction (Aksela & Haatainen, 2019; Viro et al., 2020). It also strives to foster students' creativity, problem-solving abilities, and lifelong learning by involving them in the exploration of real-world problems (Barron, 1998; Blumenfeld et al., 1991; Breault and Breault, 2005 in Beckett et al., 2006). Thus, project-based learning is a solution to fulfill students' linguistic development and 21st century skills.

#### **2.1.4 Students' Experiences**

A person's experience refers to events experienced and felt by a person that have an emotional and learning impact on their life. According to Manen

(2007), experience is an individual's impressions of transmitted events, situations, and occurrences. Furthermore, experience is a type of thinking, a fundamental unit of analysis that considers a person's mental, emotional, and practical characteristics, as well as their physical and social environment, relationships with others, and impacts on one another (Roth & Jornet, 2014). Thus, student experience refers to the expression of thoughts, feelings, and emotions they get from a series of interactions and events they experience during the learning process, which shapes their understanding, ability, and the way they interact with their surroundings.

Furthermore, the term student experience raises many perspectives among researchers. The student experience can be analogized to the customer experience, with students receiving educational services, systems and products. It is concerned with how student interactions work and their impact (Matus et al., 2021). More specifically, student experience is widely associated with student learning experiences in several situations (Universities UK, 2016 as cited in Jones, 2018) that are linked to student learning outcomes, which directly affect student academic success (Matus et al., 2021). This is usually associated with student engagement in the learning process (Jones, 2018). Thus, student experience in the context of this study refers to the learning experience that includes the level of engagement, interaction dynamics, and feelings during the implementation of project-based learning that shape their learning achievement (e.g., understanding, ability, and the way they interact with their surroundings) as a form of learning success.

## **2.2 Study of Relevant Research**

Before deciding to conduct this study, the researcher had studied previous research on project-based learning. The study of Ngadiso et al. (2021) investigated the students' and teachers' experiences when implementing. It focused on the domain of English Language Learning. In this study, the situation before and after implementing project-based learning was observed to compare the class situation

before interviewing the participants which includes three teachers and six students. The interview was conducted to confirm the observation's result and find out the students' and teachers' perceptions of learning English using project-based learning. The results showed that the class situation became more interesting when using project-based learning. It allowed students to be more active in participating the learning process because they are given the space to control the learning material and steps. So, it increased the ways of teaching, learning process, students' participation, and students' achievement. Thus, the positive perceptions were perceived by the students and teachers because they enjoy when using project-based learning. It also gives many benefits for them which includes developing the skills that could not be developed when using previous teaching methods.

In a similar vein, the study of Susanti et al. (2020) showed that students were happy and enjoy when they learned English using project-based learning. These results were found through quantitative and qualitative research methods that use questionnaires, observation sheets and interviews as instruments to investigate how the perceptions of teachers and students in one public of vocational high school in Surabaya Indonesia towards the implementation of project-based learning. The results showed that both teacher and students had a positive experience during the implementation of project-based learning because they can gain many benefits despite some perceived negative sides. It makes students become enjoy to learn English. They can also communicate in English more active and become critical and creative thinking students. However, teachers find it difficult to implement project-based learning because they feel that they lack adequate training, lack of resources, and differences between local cultural expectations and the project-based learning approach as well as its implementation takes more time.

Another relevant investigation conducted by Puangpunsi (2021) revealed that students experience the improvement of English language skills and the acquisition of 21st century skills which include collaboration and teamwork skills, flexibility and adaptability, problem-solving skills, critical thinking skills, media and technology literacies, information literacy, and communication skills. Through questionnaires and semi-structured interviews, researchers were also able to find

that students experienced an increase in their self-confidence and motivation to participate in learning activities to achieve learning goals. Thus, they are satisfied with the implementation of project-based learning in English a subject that is a compulsory subject for their bachelor's degree.

Furthermore, the study of Meyer and Wurdinger (2016) were focused on students' life skill development which was investigated by using mix method which is used Likert-scale survey, semi-structured interviews, and focus groups. The results showed the positive perceptions from the students. They perceived the improvement in the time management, collaboration, communication, and self-directedness skills. Generally, the most important life skills that are perceived by students include responsibility, self-directedness, collaboration, communication, creativity, and work ethic.

Specifically, the study of Haniah et al. (2021) focused on the implementation of online project-based learning in teaching 21st century skills. This study used the 21st century skills theory proposed by Partnership for 21st-Century Learning (P21) which are known as 4Cs. Then, it used observation and Likert-scale questionnaires to collect the data from the participants that consist of 33 students from English Education Department. The results revealed the stages of project-based learning implemented and the advantages of project-based learning received by the students. Students that participate in project-based learning are better able to develop their critical thinking, communication, creativity, and innovation skills.

However, there are several limitations to the research above, such as the specific context and in-depth exploration of students' experiences in implementing project-based learning which covers the areas of English language learning and 21st century skills. In addition, the 21st-century skills theory used in previous studies only used the 4Cs skills theory for 21st-century skills. Therefore, researchers conducted this research intending to explore the students' experience of the benefits of project-based learning in English language learning and 21st-century skills by using the 7Cs theory from Trilling and Fadel (2009) as a development form of the 4Cs theory as well as the challenges of project-based learning implementation.