

CHAPTER III

RESEARCH METHODOLOGY

This Chapter covers the methodology of the research, which includes the design, site, and participants of the research, data collection, instrument, and procedures, and data analysis that were carried out to answer the following research questions:

1. How do teachers understand Project-based learning in English Language classrooms?
2. How do the teachers put their understanding of Project-based Learning to foster higher-order thinking Skills (HOTS) into practices of teaching English at junior high school?

At the end of this section, the summary subsection concluded the explanation.

3.1 Research Design

This research applies the qualitative method, particularly a case study. Using this approach, teachers demonstrate their grasp of how to use project-based learning to foster higher-order thinking skills (HOTS). This research also demonstrates their comprehension of incorporating project-based learning into instructional practices. According to Hamied, F.A., & Malik, R.S. (2017), studies that seek to fully comprehend the problems are best served by using qualitative approaches. Merriam (2009) states that the goal of qualitative research is to understand how individuals make sense of their experiences, interpret them, and construct their worlds. This study, therefore, placed a great emphasis on awareness of the surroundings, the circumstances, and the context.

This study is considered a case study since it aimed to see the natural phenomenon of the teachers' understanding and their teaching practices at one of the private junior high schools where teachers have a range of teaching experiences. In this case, each teacher has different lengths and abilities in teaching using project-based learning. Apart from that, a case study is used for several reasons. First, the objective of this study, which is to explore teachers' understanding of project-based learning to

foster higher-order thinking skills, is pertinent to the features of a case study, which involves researching a single phenomenon or unit inside a restricted system (Smith, 1987). Second, this study involves only four participants, which is relevant to the case study characteristic where the participants are limited in numbers. Third, this study includes several data collections from document analysis and interviews pertinent to the case study features with various information sources (Creswell, 2014).

3.2 Research Site and Participants

Since the curriculum in Indonesia has changed into an Emancipated curriculum, this study involves formal education which already implements Project-based Learning. This research held at a one of private junior high school in Central Java. The principals of this school are concerned with the development of the teaching and learning process, particularly in English education. They encourage English teachers to professionally develop their skills regarding the teaching and learning process through regional English teachers' forums and teacher working groups. The school also regularly conducts In-House Training (IHT) programs to enhance teacher competency in developing curriculum and performance. Therefore, they always have periodical supervision, which helps the teacher to reflect on their teaching practices.

The participants for this study were two English teachers at a private Junior high school. The Participants are purposefully selected based on their experience in implementing the Project-based Learning approach in the teaching and learning process noticed from the lesson plan and the outcomes of the teachers evaluation, as Kemendikbud suggested in the emancipated curriculum (2021). The criteria for selecting the participants through many processes are as follows: (1) participants have to be experienced relating to the phenomenon investigated, (2) It is better for them to have the same language as the researcher to reduce the possible loss of semantics nuisance, (3) participants have to express willingness to be open to the researcher. The participants For this study, the two participants' profiles selected can be seen in the following table.

Table 3.1 Profile of Participants

No	Name	Genre	Education	Teaching period	Category	Languages
1	Teacher 1	Male	Bachelor English education study program.	in >15 years	<ul style="list-style-type: none"> • Certified PPG • Not Penggerak teacher 	Fluent in Indonesian and English
2	Teacher 2	Male	Bachelor English Education study program	in >7 years	<ul style="list-style-type: none"> • Certified PPG • Penggerak Teacher 	Fluent in Indonesian and English

The participants were chosen through pre-survey before doing the research. The school suggested them since they were considered to be qualified to be observed. The process of selecting participants is through recommendations from the school principal which are seen from the results of teacher assessments carried out every semester. In addition, the school principal also coordinated with the school supervisor to ensure that both of them were suitable to be participants in the research based on their learning experiences in the previous semester. The participants were two English teachers who had been teaching for around fifteen years and seven years in the school. Both of them are certified as teacher professional education programs (PPG). This program is designed to provide teachers with specialized training and certification to enhance their skills and effectiveness in the classroom. Becoming certified in a PPG typically involves completing specific courses or modules focused on pedagogy, educational psychology, curriculum development, and other aspects of teaching practice. They had experienced some curriculum changes and were familiar with some learning approaches so it would give them more insight into project-based learning approaches. Teachers who are familiar with curriculum changes and diverse learning approaches are better positioned to understand and implement project-based learning. Their experience provides them with the adaptability, strategic understanding, and practical skills necessary to effectively engage with and benefit from Project-based learning methodologies.

3.3 Data Collection

There were three types of instruments used in this study: Document analysis in the form of the lesson plan, classroom observations, and semi-structured interviews. By using a variety of instruments in data collection, this study applied triangulation to fulfil the validity of the research.

3.3.1 Document analysis

The first instrument was a document analysis in the form of a Lesson plan conducted to collect information related to the teachers' understanding of PjBL. There are two teachers' lesson plans used as the instruments of this study, namely Lesson Plan 1 and Lesson Plan 2. This is done to ascertain how consistently teachers employ project-based learning in every topic that has to be taught. In this study Lesson plan is utilized to get additional information on how the teacher modified the teaching scenarios and assessments in line with the lesson plan functions. According to Richard, cited in Setiawan (2016), a lesson plan is used to decide how the objectives are created, the learning experiences are chosen and arranged, and the evaluation is made. The lesson plan analysis developed by the Kemendikbud team (2020), which covered the stages of project-based learning and higher-order thinking skills was used to know the plan of the teacher before doing classroom activity.

3.3.2 Classroom observations

The second instrument was classroom observation. The researcher uses classroom observation to look at what is going around the participant (Heigham, 2009). In addition, the benefit of conducting observations is to obtain a more accurate indication of the subject's (teacher) activities in comprehending a learning method (Fraenkel, 2011). The observations are focused on the teacher's and students' activities in three meetings in the classroom. The observations are organized to obtain data from the teachers' practices in classroom activities related to the based learning method, specifically to describe the teachers' process of teaching and learning English by applying Project-based learning. This Observation gave a general summary of how project-based learning practice aligns with the paradigm proposed by Stroller (2006)

An observation checklist was used in this stage. The checklist was adapted from Stroller (2006) for stages in project-based learning and Anderson et. Al (2001) for the dimensions of HOTS. Therefore, the checklist covered eight stages of project-based learning (choosing project-topic, pre-communicative activities, asking essential questions, designing a project plan, creating a project timeline, finishing the project, Assessing the project results, and Evaluating the project and six cognitive dimensions for Higher-order thinking skills as calls remember, understand, apply, analyze, evaluate, and create. Besides using a checklist, some notes were also added to get more detailed information, especially to help the writer look at the existence of HOTS while the participants were doing classroom observation. The HOTS can be measured from the students' responses while the teacher applies the stage in every meeting.

3.3.3 Semi-structured Interview

The third instrument was a semi-structured interview. The interview sessions were hold to collect deeper and more detailed information about project-based learning and higher-order thinking skills. The Interview was used to support the data collected from the document analysis and (lesson plans and observations). Interviews gave the researcher a way to learn more about participants' perceptions and interpretations of a phenomenon than could be learned through simple observations (Gay, 2009). In this study, the interview questions are in semi-structured form as semi-structured interviews are most useful for obtaining information to test a specific hypothesis that the researcher has in mind (Fraenkel, 2011). The sequence interview were hold four times and the first interview questions are utilized to get teachers' confirmation from their lesson plans. In other words, the first Interview emphasized the teachers' understanding of Project-based learning. Meanwhile, the next interviews are used to identify Project-based learning practices in their teaching and learning process. The frameworks of the Interview were modified from Stroller (2006) regarding the teachers' understanding and practices in project-based learning.

3.4 Data Collection Procedures

Collecting data covers identifying and selecting an individual for a study, obtaining their permission to study them, and gathering information by asking

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questions or observing their behaviours (Creswell, 2014). The data were collected through three instruments: Document analysis, classroom observations, and interviews. From eight stages of project-based learning, the teaching and learning process in the classroom was conducted in four meetings according to the time needed for the teacher and students to complete the project. The timeline of data collection is displayed in the following table:

Table 3.2 Timeline of data collection

Time	Activity	Instrument
Meeting 1-4 (Before the classroom activity)	a. Document analysis	Lesson Plan
Meeting 1-4 (During the classroom activity)	a. Observation	Observation Checklist
Meeting 1-4 (After the classroom Activity)	a. Interview with teachers	Interview guideline

The table above (3.2) indicates that the teachers need four meetings to complete the project. The teacher used the three tools to collect data during the meeting. Before starting the lessons, lesson plans are used to determine the actions that the teacher is going to carry out during the teaching and learning process. Meanwhile, during the lesson, the researcher used classroom observation to find out how the implementation of Project-based learning matched the teacher's understanding. Finally, in order to align before and throughout learning, interviews were done. This session occurred after the class had ended.

3.4.1 Document analysis

Document analysis was conducted before the classroom activity. The lesson plan was submitted before the teacher held the teaching and learning process. There were two project-based learning lesson plans from each teacher, but only one were utilized as an example. Each lesson plan's subject is distinct and customized to the class's grade level, which consists of grades seven, eight, and nine. These lesson plans are chosen because the teacher prepares them for Project-based Learning to foster the HOTS model. It is also the teaching scenarios and assessment of the lesson plans that are modified into project-based learning model characteristics.

The lesson plan focused on the teachers' decision-making during creating the activities in every stage of project-based learning. Through the activities, the researcher can evaluate the HOTS activities created by the teacher related to the planning, implementation, and reporting. Furthermore, it focused on how teachers understand the concept of project-based learning to foster HOTS, whether they made the HOTS activities in every stage or only in a part of the stages. Additionally, some notes were taken to get more detailed information on teachers' lesson plans before the teaching-learning process.

3.4.2 Classroom Observation

The researcher conducted the observations without being involved with the teaching and learning process. The Observation was held in four meetings during the implementation of project-based learning to foster HOTS. Thus, the observation checklists were used from the choosing project-topic until the evaluation of the project. It was used to investigate how the teacher put their understanding of project-based learning into practice. In classroom observation, the researcher observed how the teaching-learning process happens. The teaching and learning process during the meetings was videotaped with the teachers' permission.

The observations pointed out teachers' role in implementing the concept of project-based learning to foster HOTS as they created in their lesson plan. The data from the observations were combined by using field notes (observations notes and checklists) and video recordings. Field notes are the written account of what the researcher hears, sees, experiences, and thinks in this course of collecting and reflecting on the data. The observations and checklist notes were written in the observations while the activities were running. These observations were written because the memory of the observations was still fresh, as suggested by Van Lier (cited in Setiawan, 2016).

3.4.3 Semi-structured Interview

The interview session was organized with the teacher after doing classroom observation. The Interview was a sequenced semi-structured interview. The Interview was conducted four times related to the classroom observation. In every meeting, the researcher asked some questions related to stages in project-based learning and the

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HOTS dimension. There were four guidelines for conducting the Interview (See Appendixes 3), but it was also open to following questions that might lead to getting more information. The semi-structured interviews were established because they are most useful for obtaining information to test a specific hypothesis that the researcher has in mind (Fraenkel, 2011) and allow the researchers the freedom to express their views on their terms (Cohen cited in Nurdevi Bte Abdul, 2021).

The Interview focused on what the teacher thought about the concept of project-based learning to foster HOTS and whether that understanding is in line with implementation in the learning process or not. During the Interview, the questions and answers were recorded with the teachers' permission. Thus, the guideline sheet was also used to take some notes during the Interview in case the recording tools failed to record the Interview properly. Then, the interview protocols are also used to obtain during the Interview. These protocols include the heading, instructions to the interviewer, and questions related to the teachers' understanding and experiences in implementing project-based learning to foster HOTS. Additionally, the Interview was arranged using Bahasa Indonesia to make both the teacher free to express their feeling and ideas without being limited by the vocabulary.

3.5 Data Analysis

Analyzing consists of "taking the data apart" to determine the individual responses and then "putting it together" to summarize it (Creswell, 2014). Furthermore, gathering and analyzing data happen at the same time. To increase the reliability of the data, the findings from the semi-structured Interview, classroom observation, and document analysis were cross-checked at the conclusion of the analysis. A conclusion's validity is increased when it is backed by information gathered from several distinct instruments (Fraenkel, 2011).

The actual analysis was divided into several phases. The lesson plan, classroom observation, and semi-structured interview data were analyzed in this study using Creswell's (2014) guidelines for data analysis in qualitative research.

3.5.1 Document Analysis

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The lesson plans were analyzed before the classroom observations, and they consisted of activities that covered the stages of project-based learning to foster HOTS. The document analysis of the lesson plan is used to see the relevance between the planning and the implementation of project-based learning. In analyzing the document, first, they were organized and prepared for the analysis. They were typed and sorted based on the date of the data collection. Then, each part of the lesson plan in terms of learning objectives, learning material, learning method, learning sources, and learning activity that use a project-based learning approach is labelled as the document analysis data. The purpose of labelling is to identify the components that make use of HOTS project-based learning.

After that, the data were coded and categorized. The data were coded based on the themes covered in the research questions. The themes are developed based on the practices of project-based learning to foster the HOTS model from the Kemendikbud team (2020). The data analysis included what items in project-based learning that were reflected in their lesson plan. Lastly, the data were interpreted with the result from the classroom observation and Interview. The theme of the document analysis is displayed in the following table:

Table 3.3 An example of lesson plan analysis

No	PjBL Steps	Yes	No	Excerpt
1	Planning - Pre-communicative Activities - Asking Essential Questions - Designing Project plan - Creating Project Timeline			
2	Implementation			
3	Reporting - Assessing the project results - Evaluating the Project results and learning activities			

The lesson plan's items are explained in this table. The project-based learning processes are used to categorize and end each teacher's lesson plan. In order to evaluate the teacher's comprehension at each level and step, the researcher underlined the points the teacher made. Following categorization, the researcher made a note of the concept

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and classified it according to teacher comprehension standards. In the end, at every phase and stage of project-based learning, the information in the lesson plan is generally summarized.

3.5.2 Classroom observation

The data from observations are classified into three steps of project-based learning activities: (1) Planning, (2) Implementation, and (3) Reporting based on the Stroller (2006). The data were obtained from observation checklists, notes, and videotapes during the implementation of project-based learning in the classroom. There were some steps in analyzing the result of the Observation. First, after each meeting ended, the observation checklist and notes were reviewed by watching the video of the learning process to see if any activities were missed from the observation process in the classroom. Second, the data were organized and prepared for analysis. They were arranged and typed from the first to the last stage of project-based learning to foster HOTS. Then, the data were read to provide a general sense of information. Next, the teacher activities were coded and categorized according to the Project-based learning framework by Stroller (2006). Also, the analysis covered the teacher's instruction in every stage of project-based learning. The field notes (Observations notes and checklist framework) can be seen in Table 3.4 below:

Table 3.4 An Example of Observation Data Analysis

No	PBL Steps	Activities	Description
1	Planning	1. Choosing the topic 2. Pre-communicative Activities 3. Asking Essential Questions 4. Designing Project plan 5. Creating Project Timeline	
2	Implementation	1. Finishing the Project	
3	Reporting	1. Assessing the project results 2. Evaluating the Project results and learning activities	

Adopted from: Stroller (2006)

Table 3.4 demonstrates how the researcher carefully recorded each teacher's implementation of the steps during classroom observations. Following an explanation

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and coding of each phase in accordance with its specific context, the outcome of the description of each stage is concluded, representing the teacher's implementation of project-based learning in the classroom. Depending on the stage being worked on, four meetings were needed to complete this observation class, each with a distinct description. During this process, the teacher records how the teacher leads the class. This was done so that researchers could check again after class ended.

3.5.3 Semi-structured Interview

The data from the Interview were analyzed in several steps. First, the recording of the Interview was transcribed. Since the Interview was sequenced, four recordings were analyzed separately. Second, the transcripts of the interviews were labelled in every meeting. The Interview was conducted in Bahasa Indonesia to ignore the misunderstanding of both the researcher and participants. Then, the Interview was translated into English. Third, the data were coded and categorized based on the concept of teacher understanding of project-based learning to foster HOTS. The transcript of the Interview with the teacher was labelled Teacher 1 and Teacher 2. The synthesizing, interpreting, and concluding processes were done by comparing and contrasting the concepts of Project-based learning. Finally, the findings were interpreted. Thus, all analyzed data from those three ways of analysis were compared and collaborated to provide triangulation. Since the study was small-scale, the triangulation of the data from three methods provides clear findings that were drawn to affirm the general conclusion. Tables 3.5 and 3.6 show the transcript of the Interview and the main themes.

Table 3.5 The interview transcript display

Questions	Excerpts	Codes	Notes
Q1.	T1 T2		
Q2.			
Q3			
Q4			
Cont....			

Table 3.5 elaborated that the Interview was conducted with the teacher. The Interview was recorded with the teacher's permission. There were four sessions in the

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Interview and using interview guidelines. Thus, the guideline sheet was also used to take some notes during the Interview in case the recording tools failed to record the Interview properly. The Interview was conducted after the teacher completed the activity in every meeting. This session is used as additional information or supporting data from the observation and lesson plan. Additionally the Interview was conducted using Bahasa Indonesia to make both the participants and the researcher were free to answer the question without being limited by the vocabulary.