CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses the method that was used in the research, subject, setting, and time. It also covers the research procedures, data collecting techniques, research instruments, and data analysis technique.

3.1 Research Method

Creswell (2012, pp. 1, 3) defines that research is a process of small steps of logical steps used to collect and analyze information to increase understanding of a topic or issue. Tuckman (1999, p. 4) states that research is a systematic experiment to provide answers to questions. The answers can be abstract and general answers, or it may give extremely concrete and specific answers. In this research, the researcher conducts research to find out about how teacher implements inquiry-based learning in Kindergarten level at ABC School.

Creswell (2014, p. 2) states that "Qualitative research is an approach to exploring and understanding the meaning of individuals or groups ascribe to a social or human phenomenon". According to Denzin and Lincoln (2005, p. 3), qualitative research describe in more detail, as below:

"Qualitative research is multi method in focus, involving an interpretive, naturalistic approach to its subject matter. This mean that qualitative researcher study in their natural setting, attempting to make sense of or interpret phenomena in terms in the meanings people bring to them. Qualitative research involved the study used and collection of a variety empirical materials-case study, personal experience, introspective, life story,

interview, observational, historical, interactional, and visual texts that describe routine and problematic moment and meaning in individual's live."

In other words qualitative research is a research method that is conducted in a natural setting to interpret phenomena about individual or groups.

Fraenkel and Wallen (2008, pp. 422–423) provide five general characteristics of qualitative research; (1) the natural setting of qualitative research is the direct source of data, and the researcher is the key instrument in qualitative research; (2) data in qualitative research are collected in the form of words or pictures rather than numbers; (3) qualitative researchers are concerned with process as well as product; (4) qualitative researchers tend to analyze their data inductively; (5) the major concern to qualitative researchers is how he or she captures the thoughts of the participants from the participants' perspective.

From definitions and characteristics of qualitative research above, the researcher decided to conduct qualitative research because the researcher did a research in which is done naturally, without a specific setting or hypothesis before conducting the research. Then the researcher observed the research field and found an interesting phenomenon about the implementation of inquiry-based learning in Kindergarten level. Furthermore, the researcher begun to investigate this phenomenon in depth and describe descriptively clear in accordance with the data collected in the research field.

In this research the researcher used qualitative case study method, as Creswell (2014) states that case study is an in-depth exploration of a bounded system (for example activity, event, process, or individuals) based on extensive data collection. Bounded means that the case is separated out for research in terms of time, place,

or some physical boundaries. Creswell (2014) also states that, "The case of case study maybe a single individual, several individuals separately or in a group, a program, events, or activities (e.g., a teacher, several teachers, or the implementation of a program)" He also states that the case may represent a process consisting of a series of steps that forms a sequence activities.

From that definition, the researcher decided to conduct case study method because the researcher conducted a research about a process that consist of a series of steps, that forms a sequence of inquiry-based learning process. Then the researcher also conducted a research that need to be analyzed by doing in-depth exploration of the implementation of inquiry-based learning process.

3.2 Research Subjects, Setting, and Time

The qualitative research was conducted in grade K2 and K3 in ABC School, which is International Baccalaureate (IB) School. There are two homeroom teachers and ten students. K2 class consists of three boys and one girl, while K3 class consists of four boys and two girls; they are ranging from four until six years old. Nine of them were Indonesian and one was Canadian. Each student in the class has different personalities and learning styles, they also have a different level of English. Almost all of K3 students speak and understand English really well, some of the K2 students have a lower level of English compared to the K3 students.

The subject of this qualitative research were two Kindergarten homeroom teachers and ten K2 and K3 students in ABC School.

The research was conducted from August to November 2016, in accordance with the internship time of the researcher. The research started by observing K2

and K3 students from August 22nd to September 24th, 2016. After understand the condition of the research field and found an interesting pehenomenon to be investigated, the instruments to collect the research's data were made by the researcher from September 26th to October 9th, 2016. After that, all of the instruments validated by the mentor teacher, ABC School principal, and thesis supervisor from October 10th to 18th October 2016. It took a week for validating all instruments by mentor teacher and ABC School principal because there were some parts that needed improvement and has to be revised by the researcher.

The observation was conducted by using anecdotal record observation from October 19th until October 31st, 2016. On Thursday, November 3rd, the researcher gave an interview to homeroom teachers. This research was conducted in some subjects, which are TDL (Trans-disciplinary), Art, and Math lesson. It was because the researcher wants to know whether homeroom teachers' implemented inquiry-based learning in all lesson or no, and to know the way homeroom teachers implement inquiry-based learning in each lesson.

3.3   Research Procedures

Fraenkel and Wallen (2008, pp. 425–427) describe six steps to conducting qualitative research; (1) identification of the phenomenon to be studied, (2) identification of the participants in the study, (3) generation of the problem, (4) data collection, (5) data analysis, (6) interpretations and conclusions.

In conducting this research, the researcher decides to synthesize the procedure of conducting qualitative research in three stage; (1) identify research problem, (2) prepare and collect data, (3) analyze data and draw a conclusion.

3.3.1 Identify the phenomenon of the study

All qualitative research begin with a phenomena. Fraenkel and Wallen (2008, p. 27) explain that a phenomenon of a research can be anything including phenomenon that involve researcher's areas of concern, conditions they want to improve, difficulties that they want to eliminate, or questions for which they seek answers. In this research, the researcher identifies the phenomenon through observing teaching and learning process in the classroom. The researcher observed two subjects; Bible Study and Music. From that observation, the researcher found an interesting phenomenon about the implementation of inquiry-based learning in Kindergarten level.

From this phenomenon, the researcher proposed a qualitative research to investigate about how homeroom teachers implement inquiry-based learning in the classroom. The focus of the research is to find out the way of the homeroom teachers implementing inquiry-based learning. The researcher asked permission from homeroom teachers, ABC School principal, and thesis supervisor to do a research about this phenomenon. After getting approval, the researcher started to prepare the research instruments.

3.3.2 Prepare and collect data

During collecting data, the researcher used triangulation in collecting data. According to Flick (2014, p. 187), triangulation in collecting data refer to different way in collecting data. In this research, the researcher using different research instruments in different times and different subjects.

The instruments used by the researcher in collecting data were anecdotal record observation and homeroom teachers' interview. The researcher used

anecdotal record observation to record all the things happened in the class during inquiry-based learning teaching and learning process (included how homeroom teachers' implemented inquiry-based learning and how students' response on it). To improve the detail of anecdotal observation, the researcher used a digital camera to record teaching and learning process. This video recording was very useful for the researcher to write down the detail that happens in the class that was not written yet during direct observation. Every night after school, the researcher spent a time to watch again this video recording. The interview was conducted on 3rd November, 2016. The purpose of this interview was to know deeper the detail of the implementation of inquiry-based learning done by homeroom teachers.

3.3.3 Analyze data and draw conclusion

In order to analyze all of the data collected, the researcher used qualitative analyze data technique by Miles and Huberman. Miles and Huberman (Miles & Huberman, 1994, pp. 10, 11) separate three flows of activity in analyzing data; data reduction, data display (interpretation), and conclusion drawing. After knowing the result of the research, the researcher draws a conclusion of the result of the research.

3.4   Method of Data Collection

Data collection is conducted to gather information needed in order to answer all of the research questions (Gulo, 2002, p. 110). In order to collect all of those data, the researcher used triangulation in collecting data. Denzin (1989) as cited in Flick (2014, p. 187) states that triangulation refers to the use of different data sources. This is in line with Lambert (2012, p. 138) who states that "Triangulation means drawing data from two or more methods or sources, so that the researcher

can use a range of information to answer the research questions". That statements show that in triangulation, the researcher can use two ore more data sources. In doing triangulation of collecting data, as subtype of data triangulation, Denzin makes a distinction between (1) time, (2) space, (3) and persons. It means that Denzin recommends studying phenomenon at different dates, places, and from different persons.

In this research, the researcher investigated the phenomena found from different times. The researcher done six times of observation in six different times (see Appendix A-1). The researcher also investigated the phenomenon in different subjects or lessons, that were in Math lesson, Art lesson and Trans-disciplinary lesson. The last, the researcher investigated the phenomenon from different persons, they were two Kindergarten teachers at ABC school (Teacher A and Teacher B).

3.5   Research Instruments

According to Fraenkel and Wallen (2008, p. 110), an instrument is all of the devices that the researcher uses to collect data. Gulo (2002, p. 123) states that research instrument is written guidelines about an interview, observation, or questionnaire, which are prepared for collected information from respondents. In this research, the researcher collected data on how teacher implementing inquiry-based learning and students' inquiry skills by using observations checklist and observation anecdotal record, questionnaire, and interview.

3.5.1 Observation

The word observation can be defined as "The process of gathering open-ended, firsthand information by observing people and places at a research site" (Creswell, 2012, p. 213). The purpose of using observation as a research instrument is to understand the setting and the problem being studied from the perspectives of the participants (Hatch, 2002, p. 72). In this research, the researcher did participant observation, as Arikunto (2005, pp. 30–31) stated that in participant observation, the researcher actually participates fully in the situation, setting, or activity being studied. The reason that the researcher did participant observation is so that the researcher can know deeper about what is happened and what is perceived by each individual in the group.

In this research, the researcher did anecdotal record observation by taking notes of everything happened when teacher implemented inquiry-based learning in every lesson, using the anecdotal record observation form. All the data collected will be analyzed by the researcher. The data from anecdotal observation form will be analyzed to see the detail of the implementation of inquiry-based learning by homeroom teacher during the teaching and learning process.

Tabel 3. 1 *Anecdotal observation instrument*

Focus	Indicator	Statement
Inquiry-based learning and Students' inquiry skills	Teacher finds out students' prior knowledge and helps students become engaged in new knowledge.	Description of what teacher does to find out student's prior knowledge and what teacher does to help students become engage in new knowledge and how students respond to them.
	Teacher guides students to ask questions to extend their background knowledge. Teacher also leads students to building on what they already know.	Description about how teacher guides students to ask questions to start extending the background knowledge that they already have and how teacher lead students in building on what they already

		know, and how students respond to them.
	Teacher explains the new knowledge and gives opportunities for students to connect it to their previous knowledge or current learning experience.	Description about how teacher explains the lesson and whether teacher gives opportunity for students to connect their previous experiences with current learning, and how students respond to them.
	Teacher helps students begin to apply previously introduced knowledge and experiences to new knowledge.	Description about what teacher does to help students in applying previously introduced knowledge and experiences to new knowledge, and how students respond to them.
	Teacher encourages students to reflect on what they have learned in the previous stages and reach conclusions to see how much learning and understanding has taken place.	Description about what teacher does to encourage students in reflecting on what they have learned in the previous stages and reach conclusions to see how much learning and understanding has taken place, and how students respond to them.
	Teacher encourages students to further apply their new understanding from what they have just learned.	Description about what teacher does to encourage students to further apply their new understanding from what they've learned, and how students respond to them.

Source: Researcher

3.5.2 Interview

According to Esterberg as cited in Sugiyono (2015, p. 231) interview is "A meeting of two persons to exchange information and idea through question and responses, resulting in communication and joint construction of meaning about a particular topic". In this research, the researcher conducted a semi-structured interview. The purpose of a semi-structured interview is to get an in-depth interview (Sugiyono, 2015, p. 232), so homeroom teachers could express their original opinions and ideas about the way they implementing inquiry-based learning in the class.

Interview with homeroom teachers was done in order to know preparations, activities, and challenges in conducting inquiry-based learning in the class. Fraenkel and Wallen (2008, p. 445) also state that interviewing is really important for the researcher because through interviewing the researcher can check the correlation of the data result from researcher perspective (through observing) and the participant's perspective. Thus, interviewing is an important thing to do in qualitative research. To support the interview process, the researcher prepared twelve questions to know deeper about the way teacher implementing inquiry-based learning in the class.

Tabel 3. 2 *Homeroom teachers' instruments*

Focus	Indicator	Questions/ Statements
Inquiry-based learning	**Teacher finds out students' prior knowledge and helps students become engaged in new knowledge.**	
	Teacher identifies strategies used to engage students in every lesson.	1. What are the strategies that you use to make students engage in every lesson?
	Teacher recognizes the best strategy to find out students' prior knowledge.	2. Which strategy do you think works best to find out students' prior knowledge?
	Teacher guides students to ask questions to extend their background knowledge. Teacher also leads students to building on what they already know.	
	Teacher identifies how to guide students to ask their questions about the lesson.	3. How do you guide students in asking their questions about the lesson?
	Teacher reflects on what needs to be improved to develop students' questioning skills.	4. What should be improved to develop students' questioning skills?
	Teacher explains the new knowledge and gives opportunities for students to connect it to their previous knowledge or current learning experience.	
	Teacher identifies strategies that use to help students to connect their prior knowledge with the current learning.	5. What are strategies that you use to help students to connect their prior knowledge and the current learning?
	Teacher reflects on difficulties they meet in helping students connect their prior knowledge and current learning	6. Do you meet any difficulties in helping students to connect their prior knowledge and current learning?

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	Teacher helps students begin to apply previously introduced knowledge and experiences to new knowledge.	
	Teacher identifies what to do to help students begin to apply the new knowledge.	7. What do you do to help students begin to apply the new knowledge?
	Teacher encourages students to reflect on what they have learned in the previous stages and reach conclusions to see how much learning and understanding has taken place.	
	Teacher identifies what to do to encourage students to reflect on what they have learned.	8. What do you do to encourage students to reflect on what they have learned?
	Teacher encourages students to further apply their new understanding from what they have just learned.	
	Teacher identifies what to do to further apply their new understanding from what they have just learned.	9. What do you do to encourage students to further apply their new understanding from what they have just learned?
	Teacher identifies difficulties in implementing inquiry-based learning in Kindergarten level.	10. Overall, what are difficulties in implementing inquiry-based learning in Kindergarten level?
Students' Inquiry Skills	Teacher recognizes development of students' inquiry skill.	11. Compare to the beginning of the quarter, do you think that students are developing their inquiry skills (like their critical thinking, how to answer questions, and how to ask questions during the lesson)?
	Teacher identifies what to do to help students develop their inquiry skill in preparing them to be an inquirer IB learner.	1. Overall, what do you do to help students develop their inquiry skills in preparing them to be an inquirer IB learner?

Source: Researcher

Tabel 3. 3 *Indicator specification table*

Focus of the research	Indicator	Collecting Data Method	Data Source	Instruments	Time
Implementation of inquiry-based learning	Teacher find out students' prior knowledge and helps students become engaged in a new knowledge.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31st, 2016
		Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016
	Teachers guide students to ask questions to start extending the background knowledge they already have. Teacher also lead students to building on what they already know.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31st, 2016
		Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016
	Teacher explains the new knowledge and give opportunity for students to connect their previous knowledge or experience with current learning.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31st, 2016
		Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016
	Teacher helps students begin apply previously introduced knowledge and experiences to new knowledge.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31st, 2016
		Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016

Teacher encourages students to reflect what they have learned in the previous stages and reach conclusion to see how much learning and understanding has taken place.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31rd, 2016
	Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016
Teacher encourages students to apply their new understanding that they already learned.	Observation	Homeroom Teachers	Anecdotal Record	October 19th - October 31rd, 2016
	Interview	Homeroom Teachers	Homeroom Teachers' interview	November 3rd, 2016

Source: Researcher

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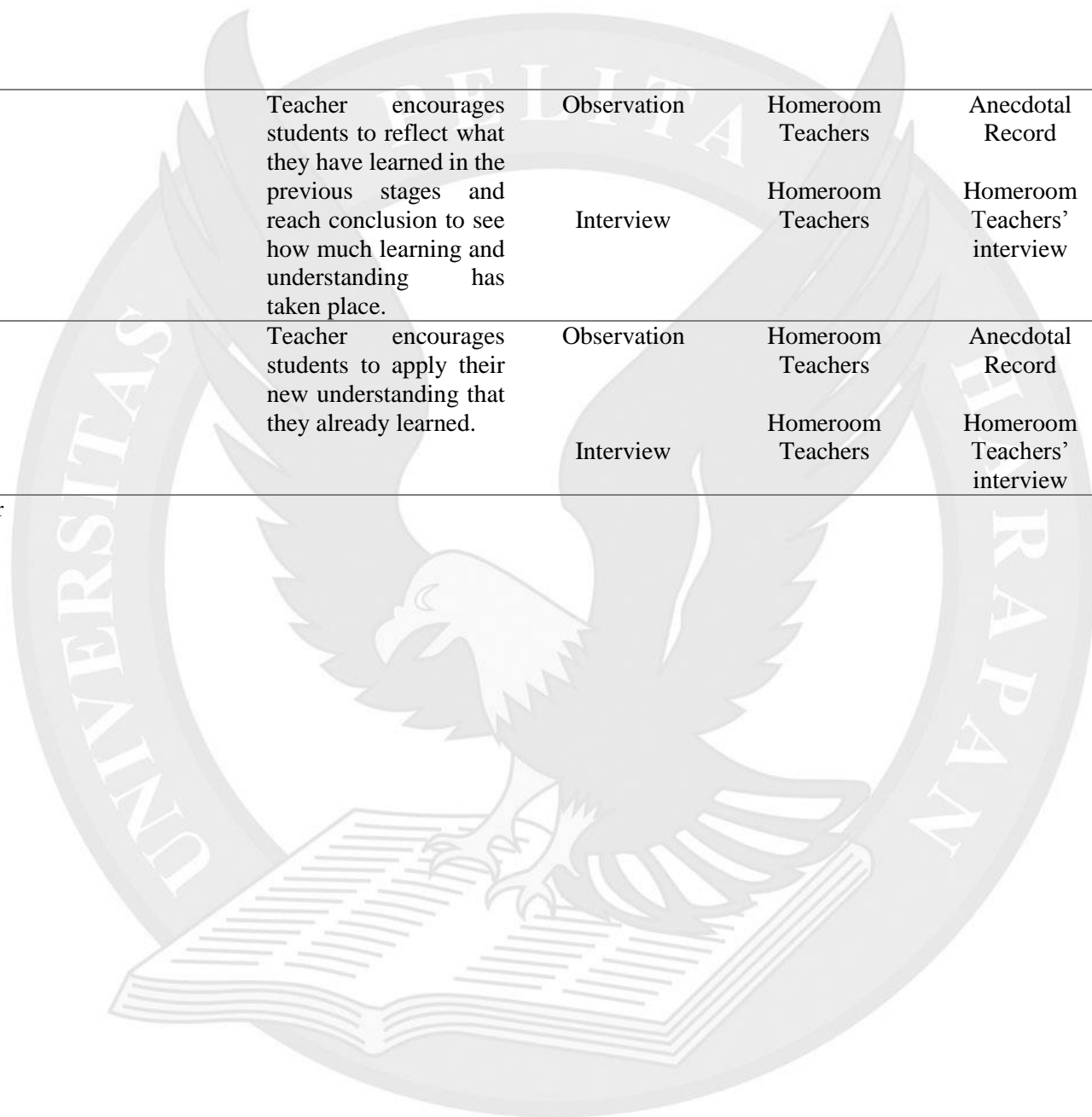
3.6 Data Analysis

Data analysis is the process of systematically searching and arranging the interview transcripts, field notes, and other materials that accumulate by the researcher to increase the researcher's own understanding of them and to enable the researcher to present what the researcher have discovered through the research (Bogdan as cited in Sugiyono, 2015).

In this research, the researcher used triangulation in analyzing data. According to Flick (2014, p. 188), in analyzing data use triangulation, the findings of each instrument should be compared each others. From this statements, to analyze the data, the researcher compared the findings of anecdotal observation done by the researcher and the findings of homeroom teachers' interview, then the researcher analyzed the findings descriptively.

Besides using triangulation in analyzing the data, the researcher also used qualitative analyze data technique by Miles and Huberman. Miles and Huberman (1994, pp. 10, 11) separate three flows of activity in analyzing data; data reduction, data display (interpretation) and conclusion drawing.

3.6.1. Data reduction

According to Miles and Huberman (Miles & Huberman, 1994, p. 10), data reduction refers to the process of selecting, simplifying, and transforming the raw data that appear from written records on the field.

Data reduction means summarizing, selecting subject matter, focusing on the important things, look for themes and patterns, and discard the unnecessary; so conclusions can be drawn and verified (Miles & Huberman, 1994, p. 11). Qualitative data can be reduced in many ways; through selecting, through writing summaries or paraphrase, coding, teasing of themes, making clusters, or writing memos. In this research, the researcher reduced data after all of the data were collected. The researcher reduced data through selecting then organizing the important data from all instruments and summarizing data to make the data meaningful.

After all of the data are organized, the researcher starts coding all of the data. "Coding is the process of organizing the data by bracketing chunks (or text or image segments) and writing a word representing a category in the margins" (Rossman and Rallis, 2012 as cited by Creswell, 2014, p. 247) Coding process can be used to generate a description of a detailed rendering of information about people, places, or themes for analysis (Creswell, 2014, p. 249). In this stage, coding is used reduce the data per each themes of inquiry-based learning's steps found by the researcher. The codes that are used by the researcher are:

Tabel 3. 4 *Table of coding*

Inquiry-based learning instructional steps	Code	Color Code
• Teacher find out students' prior knowledge and helps students become engaged in a new knowledge.	FO	
- State the purpose of the lesson	(FO-SP)	Grey
- Review last meeting	(FO-RM)	Yellow
- Teaching strategy	(FO-TS)	Dark Green
- Teaching media	(FO-TM)	Green
- Question and answer activity	(FO-QA)	Purple
• Teachers guide students to ask questions to start extending the background knowledge they already have. Teacher also lead students to building on what they already know.	AQ	
- Gather some new information using various teaching media.	(AQ-GI)	Yellow
- Gave teachers' prior experiences.	(AQ-PE)	Purple
- Posed questions.	(AQ-PQ)	Blue
- Encouraged students to raise their own questions.	(AQ-ER)	Green
• Teacher explains the new knowledge and give opportunity for students to connect their previous knowledge or experience with current learning.	EK	
- Explain the new knowledge	(EK-NK)	Yellow
- Teaching media	(EK-TM)	Green
- Used students' prior knowledge	(EK-PK)	Blue
- Gave challenging questions	(EK-CQ)	Dark Blue
• Teacher helps students begin apply previously introduced knowledge and experiences to new knowledge.	BA	
- Teaching strategy	(BA-TS)	Purple
- Type of project	(BA-TP)	Blue
- Encouraged students to communicate their new knowledge	(BA-CN)	Yellow
• Teacher encourages students to reflect what they have learned in the previous stages and reach conclusion to see how much learning and understanding has taken place.	RL	
- Directly gave reflective questions	(RL-RQ)	Blue
- Did reflection in pairs	(RL-RP)	Purple

• Teacher encourages students to apply their new understanding that they already learned.	AK	
- Bring closure to the lesson	(AK-BC)	Green
- Teaching strategy	(AK-TS)	Yellow
Instruments' Coding		
• Homeroom teachers interview	TI-A (Teacher A) TI-B (Teacher B)	

Source: Researcher

3.6.2. Data display (interpretation) and data analysis

Data interpretation is an activity to present information organized, this activity possibly to draw a conclusion and to take an action. Creswell (2012, p. 262) forms of qualitative data interpretation are matrices, graphs, charts, and descriptive discussions, such as a chronology, questions, or commentary about any changes that the participants experiences. In this research, the researcher used tables to display all of the findings each inquiry-based learning's step's findings. Then the researcher explain the findings descriptively.

In order to analyze data, the researcher made a table of comparison between the findings of anecdotal record observation and the findings of homereoom teachers' interview. Then the researcher analyzed those findings descriptively.

3.6.3. Conclusion drawing

This stage was done when the researcher already found the finding of the research. In the beginning of the analysis process, the conclusion is unclear yet, but it is going to be more explicit during analysis process until the end of the analysis process. In order to make conclusion drawing, during analysis process the

researcher has to be a review of the finding of the research, and review of the theories.