# CHAPTER III

# RESEARCH METHOD

The research method in this study including research design, population and sample, data collection, data analysis and research procedure.

## 3.1 Research Design

This research can be classified as a quasi-experimental research type. The research employed test and questionnaire design. It was involving two groups of student. One class is for the experimental group and another is in the control group. The experimental group was given the special treatment using authentic - problem based learning ( video- discussed) in reading comprehension. The control group was given the conventional reading comprehension, namely textbook-based as the teacher usually does. The research involved the independent variable and the dependent variable. The independent variable was the treatment consisting of two levels, the treatment with authentic problem- based learning in the experimental group and the treatment with the conventional learning reading text in the control group. Meanwhile, the dependent variable were the students' motivation and achievement in reading comprehension. The table below shows the design of the research.

Table 1:**The Design of the Research**

| Group | Independent variable | Dependent variable |
|---|---|---|
| Experimental group | Authentic problem- based learning | Students' motivation and achievement in reading comprehension |
| Control group | Conventional learning | Students' achievement in reading comprehension |

## 3.2 Population and Sample

The population of this research included the Eight grade students from SMPN 1 Babat Lamongan , in the second semester. The school has ten eight grade classes with 326 students. They are VIII A – VIII J in the academic year of 2019/2020.

Table 2: **The Number of Students**

| Class | Number of students |
|---|---|
| VIII A | 32 |
| VIII B | 34 |
| VIII C | 34 |
| VIII D | 34 |
| VIII E | 32 |
| VIII F | 32 |
| VIII G | 32 |
| VIII H | 32 |
| VIII I | 32 |
| VIII J | 32 |

In this research sampling technique took sample on purposive sampling (Arikunto,2010:183), purposive sampling is the process of selecting sample by taking subject that is not based on the level or area, but it is taken based on the specific purpose which the researcher taught. From the existing population, the researcher took two classes as the experimental class and the control class, VIII A was selected as the experimental class and VIII B was as the control class.

Table 3: **The Research Sample by Class**

| No. | Class | The number of students |
|---|---|---|
| 1 | VIII A | 32 |
| 2 | VIII B | 34 |

The sample above divided into two groups. The first group was class VIII A as the experimental group and the second group was class VIII B as the control

group. The experimental group was given authentic problem-based learning with using video- discussed recount text reading comprehension in teaching learning process. The control group was given recount text using conventional learning in reading comprehension in their class. The students read from the book and the teacher gave short explanation, the table below shows the distribution of treatment in the research.

Table 4: **The Distribution of the Treatment**

| Group | Class | Treatment | Number of Students |
|---|---|---|---|
| Experimental | VIII -A | Authenticproblem - based learning | 32 |
| Control | VIII –B | Conventional learning | 34 |

## 3.3 Research Instruments

Since the study was quasi-experimental, the instruments to collect the data are the test and questionnaire.

Table 5: **The Distribution of the Research Instruments**

| **Group** | **Class** | **Instrument** | **Treatment** | **Instrument** | **Student's number** |
|---|---|---|---|---|---|
| Experimental | VIII-A | Pre-test | Authentic problem - based learning | Post test | 32 |
| | | | | Questionnaire | |
| Control | VIII-B | Pre-test | Conventional learning | Post-test | 34 |

### 3.3.1 Test

There were two tests which researcher used. These were pre and posttest. Pre and post test were given to experimental group and control group to known any

progress or not in their reading comprehension. Researcher developed the test based on their syllabus which focuses on reading comprehension in recount text.

**a. Pre-test**

The data will be collected by pretest in both of classes to know the differences between two classes which taught by conventional learning and authentic problem- based learning. Pre-test will be held in both classes to know the student's reading comprehension before giving treatment.

**b. Post- test**

Post test was conducted after giving treatment. For the experimental group, authentic problem- based learning was used to improve their reading comprehension. For control group used conventional technique in their activity. Posttest was used to measure the student ability after giving the treatment.

### 3.3.2. Validity of the Test

Before conducting pre and posttest as instrument of the research, researcher will test the validity of the items. Instrument called valid if they have validity. The researcher used content validity because researcher wants to measure the test item for students especially on reading test. Besides, content validity is one of process which relate between the test item and task requirement. According to (Ary,1990) content validity it can be used to test the item on objective course book, curriculum and syllabus in (RI, 2017). The entire instrument is identified in order to know the students' improvement of their reading comprehension in English. Here, the researcher also conducts a test to measure the capability of student's reading skill.

To test content validity, the researcher compared the content of instrument the subject based on English curriculum and syllabus. If the content of test reflects

the syllabus and curriculum guide, the tests can be said have content validity. After comparing all items, researcher can conduct

pre and posttest. According to Sugiyono (2015) the correlation of Product Moment Pearson. Then we use SPSS (Statistical Product and Service Solution) for windows.

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

In which:

rxy : correlation coefficient between X and Y

ΣXY : the result of multiplying scores between X and Y for each respondent

ΣX2 : the score of squared in X (X is the score for each test item)

ΣY2 : the score of squared in Y (Y is the total correct answer score)

n : the number of student taking the test

After finding out the correlation, the researcher wanted to know the significance correlation by using the formula, as follow:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where by:

To obtain : the coefficient of significant

r : the coefficient of correlation

n : the number of sample

So there is a type of possible assessment tasks applied as follow:

1. Multiple-choice

The multiple-choice in this study provides not only the vocabulary and grammatical items but also the context to assess the students' understanding of

information in the text. The context is presented by putting a pair or part of a text followed by questions in which the students have to responds correctly.

This type of assessment involves impromptu reading and responding to questions. It is commonly used in proficiency test. In this test, students are provided a reading passage followed by questions and have to responds to the items. The set of questions in impromptu reading covers the comprehension of some features of reading:

1. Finding the main idea
2. Identifying detailed information
3. Determining the generic structure and the meaning of words
4. Determining the sequence of events
5. Making inference
6. Identifying cause and effect relationship
7. Drawing conclusion
8. Making prediction
9. Determining writer's purpose or intention

It involves problem-based where the solutions are possible to use in solving the problem (Mainali, 2012:6). The students have to seeks the solution and answer of the problem in authentic problem-based learning (APBL) in enhanching reading comprehension depends their mind self.

## A. Basic Competence and Indicator :

| | | | |
|---|---|---|---|
| 3.11. | Capturing contextual meaning related to social functoon, text structure, and language features of recount texts, spoken and | 3.11.1<br>3.11.2<br>3.11.3<br>.<br>3.11.4<br>3.11.5<br>3.11.6 | Finding the main idea<br>Identifying detailed information<br>Determining the generic structureand the meaning of words<br>Determining the sequence of events<br>Making inference<br>Identifying cause and effect relatoonship |

| | | | |
|---|---|---|---|
| | written, short and simple, related to personal recount | 3.11.7<br>3.11.8<br>3.11.9<br>. | Drawing conclusion<br>Making prediction<br>Determining writer's purpose or intention |

B. **Learning Objectoves**

3.11.1 Given a recount text, students are able to find the main idea

3.11.2 Given a recount text, students are able to identify detailed information

3.11.3 Given a recount text, students are able to determine the generic structureand the meaning of words

3.11.4 Given a recount text, students are able to determine the sequence of events

3.11.5 Given a recount text, students are able to make inference

3.11.6 Given a recount text, students are able to identify cause and effect relatoonship

3.11.7 Given a recount text, students are able to draw conclusion

3.11.8 Given a recount text, students are able to make prediction

3.11.9 Given a recount text, students are able to determine writer's purpose or intention,

For detail information can be seen in lesson plan appendik 1.

### 3.3.3 Construct Validity of Test

Construct validity refers to theoretical construct trait being measured, but not to the technical construction of the test. (Wiersma and Jurs,2009: 358). This validity is used to examine whether the test has a consistent representation with theories underlying the material given or not. To score students' reading comprehension test, the researcher used scoring rubric adapted from Blaz (2001: 39) inFakoya O.1, 2011). For detail information can be seen in appendik 2 .

### 3.3.4 Reliability of Test Instruments

After having tested the validity of the instrument, the next step is to examine the reliability. A test is considered reliable if the same test is given to the same subjects or matched subjects in two different occasions, the test should yield similar result (Brown, 2004: 20) in (Mohajan, 2017). Reliability is the consistency of the instrument in measuring whatever it measures (Wiersman and Jurs,2009: 255). It means that if the instrument has a consistent result in the second chances or more.

While the Reliability test according to (Ghozali,2016) states that reliability is a tool to measure an item's which is an indicator of the variable or construct. A question is said to be reliable if one's answer to the question is consistent or stable over time. The reliability testing used in this study is a One Shot or measurements just once, where the measurement only once and then the result compared with any other questions or measure the correlation between the answer to the question. Reliability is measured by the statistical test Cronbach Alpha. A construct or variable is said reliable if it gives the value of Cronbach Alpha > 0,70 (Nunnlly,1994 in Ghozali, 2016). Reliability is the provision of a test can be tested on the same object (Suharsimi Arikunto,2013:104) these were following criteria:

Table 6 .**The Criteria Of Reliability**

| The criteria of reliability ($r_{11}$) | Criteria |
|---|---|
| $0,80 < r_{11} \leq 1,00$ | Very high |
| $0,60 < r_{11} \leq 0,80$ | high |
| $0,40 < r_{11} \leq 0,60$ | enough |
| $0,20 < r_{11} \leq 0,40$ | low |
| $0,00 < r_{11} \leq 0,20$ | Very low |

Source: Suharsimi Arikunto (2013:89)

The instrument can be said to have reliability if the value of the criteria questions used in the instrument of 0.6 up to 1,00.

To test the reliability of the instrument in this study using IBM SPSS Statistics v. 22 and using the technique of Cronbach's Alpha are more than 0.70 that tested 25 questions on 32 students in experimental class and 34 students of control class. The following results:

Table 7. **Reliability Statistics**

| class | Cronbach's Alpha | N of Items |
|---|---|---|
| Pretest Experimental class | ,847 | 25 |
| Pretest control class | ,884 | 25 |
| Posttest Experimental class | ,874 | 25 |
| Posttest control class | ,891 | 25 |

Source: Results Output IBM SPSS 22

Based on the results of SPSS in table 7 above, it can be concluded that the value of cronbach's Alpha for the pretest experiment class amounted to 0,847, the value of cronbach's Alpha for the pretest control class by 0,884, the value of cronbach's Alpha for the posttest experimental class of 0,874, and the value of cronbach's Alpha for posttest control class of 0,891 means such a test has a reliability that is adequate because it has exceeded 0.7 of provisions, so that each 25 the point about experimental class and the control class has been declared reliable and can be used in the research, and the result can be seen in Appendix 3 – appendix 6.

### 3.3.4.1 Questionnaire

A set of questionnaires with 20 closed-ended items are distributed to experimental group, consists of 32 students after having treatment.The questionnaire is adaptedbased on two existing studies by (ElsayyedSanad,2016) and Yuni akhiar et al. 2017), who had examined the suitability of authentic problem-based learning. The adapted items were tested for its reliability using the Cronbach's Alpha Test to investigate the internal consistency of the question items within the questionnaire. The Cronbach's Alpha coefficient that is closer to 1.0 indicates greater internal consistency of

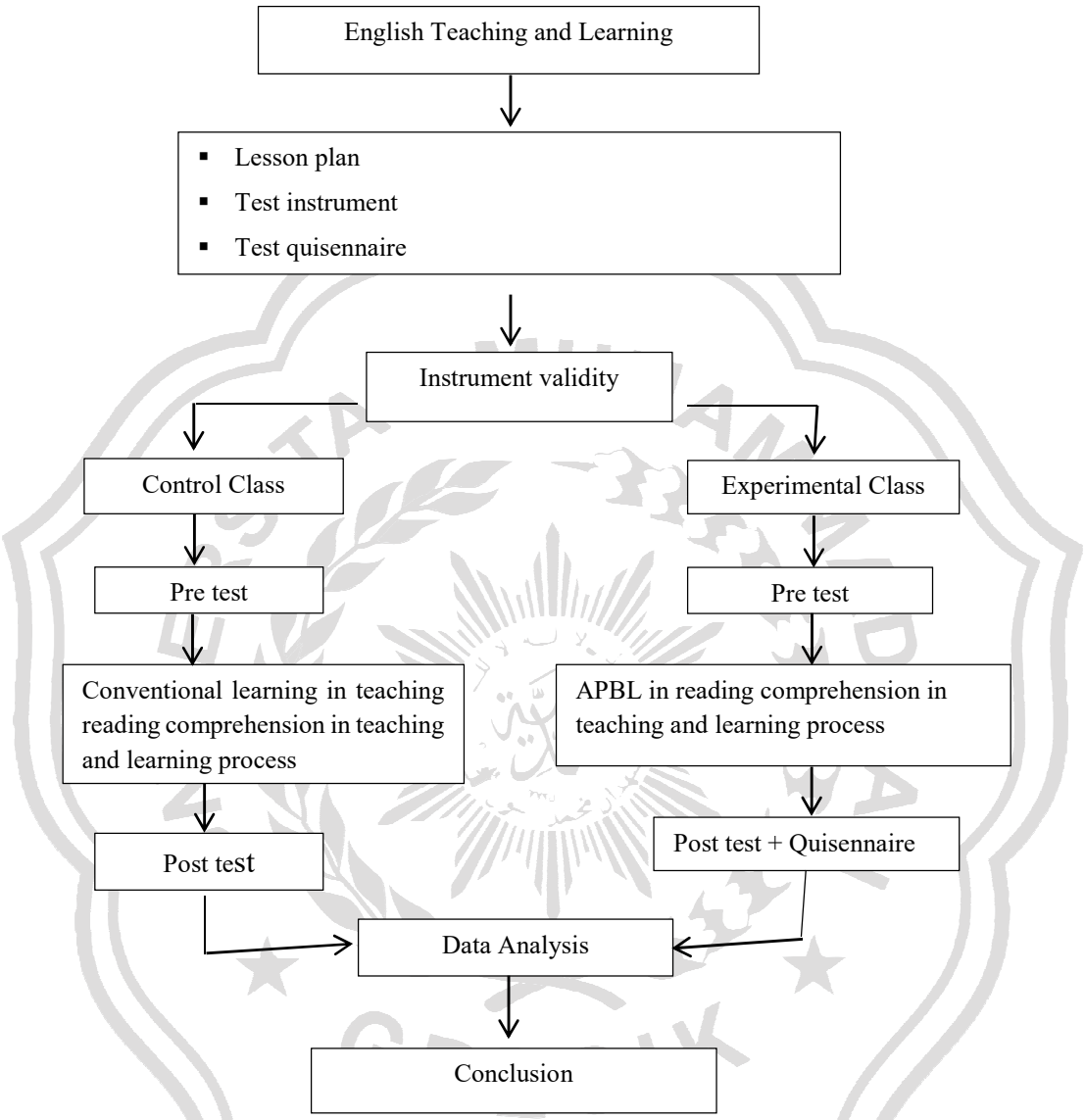
the items (Gliem and Gliem, 2003). The items were constituted using five-point Likert-type scales. Items on the scales are anchored at 1 = full disagree, 2 = disagree, 3 = abstain 4= agree and 5 = full agree.

| No | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. | Using authentic problem based learning (APBL) in English text makes me easier in learning reading comprehension | | | | | |
| 2. | I am more interested to read English text using authentic problem based learning (APBL) | | | | | |
| 3. | It is easy to remember vocabularies using authentic problem based learning (APBL) in reading English text by using video-discuss. | | | | | |
| 4. | I become enjoy and happy to follow English subject since aired APBL | | | | | |
| 5. | After watching the video – discussed or Apbl, I am more confident and brave answer the question reading comprehension in front of teachers and friends. | | | | | |
| 6. | I prefer the teacher using authentic problem based learning (APBL) in English text in the class. | | | | | |
| 7. | The APBL( video-discussed) keeps me challenged to be able to understand in reading text | | | | | |
| 8. | I would discuss and share our knowledge in group if there is material that I don't understand from the video in recount text (travelling, holiday or vocation). | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9. | I would discuss and share our knowledge about our expirience to solve the problem in group if there is material that I don't understand from the video in recount text (travelling, holiday or vocation) in reading text. | | | | | |
| 10. | I feel there is progress on my ability to read English after watching several times the video –discussed ( APBL) in the text. | | | | | |
| 11. | I feel lazy when reading comprehension passage after watching the video-discussed | | | | | |
| 12. | I feel bored when the teacher showing the video - discussed | | | | | |
| 13. | I prefer to play and chat with friends if the teacher using (APBL) in reading English text | | | | | |
| 14. | I feel confused and struggling to understand the material English, especially reading comprehension while watching the video- discussed. | | | | | |
| 15. | I feel reading Apbl in reading comprehension is just a waste of time. | | | | | |
| 16. | I'm not interested in watching the video-discussed, especially in reading comprehension | | | | | |
| 17. | I hope the teacher closes the meeting as soon as possible when using (APBL) in reading English text. | | | | | |
| 18. | It is difficult to remember vocabularies using (APBL) in reading English text by using video- discussed. | | | | | |
| 19. | I feel dislike to follow English subject since aired APBL | | | | | |
| 20. | I think the material APBL can't enhamce my motivation to read more on the 'real' English text. | | | | | |

For detail information can be seen in appendix 7.

### 3.3.5 RESEARCH PROCEDURE



Timeline of Research Procedure

| No | Date | Activities |
|---|---|---|
| 1. | January 6, 2020 | Asking the permission to conduct the research in SMP N 1 Babat Lamongan |
| 2. | January 13, 2020 | Pre test to VIII A (Experimental Class) |
| 3. | January 13, 2020 | Pre test to VIII B (Control Class) |
| 4. | January 15 - January 30, 2020 | Treatment |
| 5. | February3, 2020 | Post test to VIII A (Experimental Class) |
| 6. | February 3, 2020 | Post test to VIII B (Control Class) |
| 7. | February10, 2020 | Distributing the questionnaire to the students' of VIII A (Experimental Class) |
| 6. | February- March 2020 | Processing and analyzing the data |

The Schedule of Implementation

| No | Date | Activities Experimental group | Activities control group |
|---|---|---|---|
| 1. | First meeting | Giving pre-test for experimental group | Giving pre-test for control group |
| 2. | Second meeting | Giving first treatment using video about recount text , watching the video and give respon | Giving recount text using text book |

| | | | |
|---|---|---|---|
| 3. | Third meeting | Giving second treatment discussion in the groupto solve the problem/ question after watching the video | Teacher Explain the recount text |
| 4. | Fourth meeting | Giving third treatment student share knowledge, expierience to answer the question and one of them presentation the answers in front of their friends | Teacher give question depent of the themes. |
| 5 | Fifth meeting | Giving fourth treatment teacher ask students give respon or answer induvidual about the reading text | Teacher ask the students anwer the question individual |
| 6. | Sixth meeting | Giving post-test and quisennaire for experimental class | Givingpost test for control group |

In this study, the researcher conducts sixth meetings to apply reading comprehension by using Authentic problem-based learning at the eight grade of students of SMP N 1 Babat Lamongan. Indeed, based on lesson plans of each class (see appendix) 1.

### 3.3.6 Data Collection

The pre-test and post-test were the instruments to collect the data of this research. The students are given 25 multiple choice questions and are expected to finish it in 60 minutes. The minimum score is 0 and the maximum score is 100. Students get the total score using the following formula:

Total Score = Number Students answer correctly x 100%

The pre-test, post-test and questionnaire were the instruments to collect the data of this research. They were attempted to find out the influence of using authentic problem-based learning toward students' motivation and their

achievement in reading comprehension. The data was collected incorporating pre-test, post-test and questionnaire for the experimental group, then pre-test and post-test for control group. Pre-test was administered before the treatment to experimental and control group. The students were asked to answer the pre-test which administered in reading test. Then the treatment was done. The treatment by using authentic problem-based learning technique was designed for experimental group. Control group was treated with conventional learning. Students in the experimental group were watching the video then they were divided into six groups, each consists of five-six students. However, the researcher selected the group member that in one group is composed of students who have diverse abilities, ranging from low to high abilities to work with on alternate days during the study period. Each group discussed a chosen topic, exchanged ideas, helped each other and shared knowledge, experience to solve the problem question in the text. Then the group works had to present a topic of learning. Each group member was assigned a role and responsibility that must be fulfilled if the group was to function effectively. Those roles were assigned to ensure interdependence. At the end of the study was post-test. The students in the experimental class were also asked to answer the questionnaire of students' motivation using authentic problem-based learning.

### 3.3.7 Data Analysis

In this study, the writer uses a quantitative data analyses technique. The quantitative data of this study is analyzed by using statistical method. To analyze the data from the test, the researcher used the inferential statistics which is used test of normality, test of homogeneity, and test of hypothesis. The pre-test score was used as a covariance. It answered the question in the formulation of the problem, whether or not Authentic problem -based learning was effective and significant enough to enhancing the students' reading comprehension achievement .

**a. Test of Normality**

This test aimed to find out whether or not the collected data showed a normal distribution. This research used Kolmogorov-Smirnov test. Kolmogorov-Smirnov Sample in SPSS.22. The step in calculating the normality distribution test state that the hypothesis :If the P-values (significance) is less than α = 0.05, the data were not normally distributed, otherwise if the *P*-values is more than α = 0.05 then the data is normally distributed (Carver, 2012: 140).

**b. Test of Homogeneity**

The test was used to find out whether or not the sample variance was homogeneous. The homogeneity test was intended to test the equality of variance-covariance matrix of the dependent variable of this study. One test for assessing whether variances are homogeneous is Levene's Test, which is simply one-way analysis of variance on the absolute deviation of each score from the mean for the group (Cramer, 2003:149) in (CEF, 1990). If the value of significance (probability) on the Levene's Test is greater than 0.05, then the variance in variables are homogeneous.

**c. Test of Hypothesis**

T-test to find out the comparison of two means between pre and post test score of experimental and control group. The hypothesis of this study as follows:

If T-test score is bigger than T-table, the alternative hypothesis (Ha) is accepted. It means that there is significant different in the score to the eight grade of students SMP N 1 Babat Lamongan taught using authentic problem- based learningand taught with conventional learning, the difference is significant.

If T-test score is smaller than T-table, the Null Hypothesis (Ho) is rejected. It means that there is no different score to the grade of students SMPN 1Babat Lamongan taught using authentic problem- based learningin reading comprehension and taught withconventional reading comprehension.

$H_O$ : There is no significant effect in enhancing teaching reading comprehension by using authentic Problem- Based Learning at the eight grade of students of SMP N 1 Babat Lamongan

$H_1$ : There is significant effect in using of authentic Problem -Based Learning in students' reading comprehension achievement at the eight grade of students of SMP N 1 Babat Lamongan

After the scores compute in SPSS 22 version, then see the output of Independent- Sample T Test and interpret the output that if sig. (2-tailed) > α (0.05), the researcher should accept the H0, but if sig. (2-tailed) < α (0.05), the researcher can be rejected the Ho, it means H1 is accepted. T test calculates to find out the comparison of two means between pre and post test score of experimental and control group. In analyzing the data, the researcher uses independent t-test. In calculating t-test, the researcher uses SPSS 22 version.