

CHAPTER III

RESEARCH METHOD

This chapter describes the method that incorporates the research design, population and sample, research site, data collection, instruments, and data analysis.

3.1 Research Design

This study used a mixed methods (Tashakkori&Teddlie, 2003) design, which was a procedure for collecting, analyzing and “mixing” both quantitative and qualitative data at some stage of the research process within a single study, to understand a research problem more completely (Creswell, 2002).

Based on the purposes and research questions (see chapter I), mixed method was used to investigate the implementation of blended learning using Edmodo in teaching reading comprehension, the effect of the implementation of blended learning using Edmodo on the students’ reading comprehension, and the students’ attitude toward the implementation of blended learning using Edmodo in teaching reading comprehension. In the implementation, both quantitative and qualitative methods support each other and allow for more complete analysis (Green, Caracelli, & Graham, 1989).

The quantitative design is true experimental design administering two groups of first grade of non-English department which are randomly assigned. One class is the experimental group and one as the control group (Hatch and Lazaraton, 1991). Before and after treatments, both groups are tested using the reading comprehension test. The design is as follows (Hatch and Farhady, 1982):

$$\frac{E \text{ (random)} T_1 \times T_2}{C \text{ (random)} T_1 \quad T_2}$$

Notes:

E : experimental group

C : control group

T_1 : pre-test

Erik Yuda Pratama, 2015

THE IMPLEMENTATION OF BLENDED LEARNING METHOD USING EDMODO (A SOCIAL NETWORKING SITE) IN TEACHING READING COMPREHENSION

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T_2 : post-test

However, to strengthen the validity of the research, this study also used questionnaire which is measured using Likert scale. Meanwhile, the qualitative data used in this study is case study since the characteristics of this present study is appropriate to those of a case study. First, this present study is limited to only investigate a small scale participant (Creswell, 1998). Second, it studies a phenomenon in its real context (Liamputtong, 2009; Yin, 2011). The phenomenon in this study is one teacher promoting virtual learning class to extend the face-to-face class in teaching reading comprehension whose students think that class really motivates them and enhances their reading comprehension ability. The purpose is to find the deep investigation about the implementation of Edmodo in teaching reading comprehension.

3.2 Research Site

The research was conducted at one University in Purwakarta for several reasons. First reason is that the university was located near the researchers' place. This will give ease to the researcher in term of time management in running research. Second, the place was really accessible and the last reason was that the lecturer in this university promotes Edmodo as a media for teaching reading comprehension.

3.3 Population and Sample

The population of the study was the first grade students of non-English Department of a State University in West Java class of 2014. They were taken as the populations since the topic of the materials in this study are to be covered in this grade.

Different from the population, a sample is a group in a research study on which the information is obtained (Fraenkel and Wallen, 1990, p. 67). From 146 students of first grade of non-English department of a State University in West Java, 60 students were randomly chosen, with equal number of male and female. Further, they were classified into two groups, i.e 30 students for experimental

group and 30 students for control group (Hatch and Lazaraton, 1991). The students' names were presented in pseudonyms.

3.4 Data Collection

In conducting this study, some data collections were used to collect the data, there were pretest and posttest of reading comprehension, a set of questionnaire, interview and observation. Details about the procedure of data collection are described in the Table 3:

Table 1 Data Collection Procedure

Instrument	Data source	Sample size
Pre-test and Post-test	Students' pre-test score	60
	Students' post-test score	60
Interview	1 st semester non-regular S1 degree students of PGSD study program	6
	English lecturer	1
Questionnaire	1 st semester non-regular S1 degree students of PGSD study program	30

3.4.1 Test

Both pretest and posttest of reading comprehension consist of 30 items (Harris, 1969). Before they were tested to the students, the reading comprehension test items were tried out to the students from population which has similar characteristic with the students involved in this study.

The test was used the multiple choice as the form to check the ability of the students on reading comprehension for several reasons. First, the multiple choice test is easier, faster and more objective than any other form of test in scoring the test (Harris, 1969). Second, it is very effective to be used in testing a large number of students. Last, the reliability of this form of test is higher than the essay test (Supranata, 2004).

3.4.2 Questionnaire

A set questionnaire was used in this study. It was given to experimental group since the study was limited to only investigate the students' attitude toward the implementation of blended learning using Edmodo in teaching reading

Erik Yuda Pratama, 2015

THE IMPLEMENTATION OF BLENDED LEARNING METHOD USING EDMODO (A SOCIAL NETWORKING SITE) IN TEACHING READING COMPREHENSION

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comprehension. The questionnaires were contained of questions to reveal the attitude of the students' toward the implementation of blended learning using Edmodo in teaching reading comprehension. The type of questionnaires was Likert-Scale with five options: Strongly Disagree, Disagree, Uncertain, Agree and Strongly Agree. Likert Scale questionnaires were developing following the guideline from Oppenheim (1982). Further, the questionnaires were presented in Bahasa Indonesia in order to avoid misunderstanding. The Table 4 shows the categories of questions given in the questionnaire.

Table 2 Categories of Questions

No	Categories	Item Numbers	Total
1.	Students' attitude on cognitive aspects (belief)	1,2,3,4,5,6	6
2.	Students' attitude on affective aspects (feeling)	7,8,9,10,11,12	6
3.	Students' perception on Behavior aspects (tendency)	13,14,15,16	4
4.	Total		16

First, cognitive aspect was concerned with beliefs or perceptions about the objects or situations related to the attitude. The cognitive aspect was consisted of 6 items (number 1-6). These items adapted from Abusailek and Bulut (2007). It was aimed to find out students' beliefs about the implementation of blended learning using Edmodo in teaching reading comprehension, for example the question no.1 "Using online activities and materials is an interesting way to learn reading comprehension".

Second, affective aspect involves the feelings that arise about the cognitive element and the appraisal (good or bad) of these feelings. This affective aspect consisted of 6 items (number 7-12). These items were also adapted from Abusailek and Bulut (2007). They were aimed to find out the students' feeling on the implementation of blended learning using Edmodo in teaching reading comprehension. Here is the example of the item in affective aspect: no.6 "I feel Edmodo is safe for learning reading comprehension".

Erik Yuda Pratama, 2015

THE IMPLEMENTATION OF BLENDED LEARNING METHOD USING EDMODO (A SOCIAL NETWORKING SITE) IN TEACHING READING COMPREHENSION

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Last aspect is behavior aspect. It can be defined as the actions by which an organism adjusted to its environment. This behavior aspect was consisted of 4 items (number 13-16). These items were also adapted from Abusaileek and Bulut (2007). It was aimed to find out their effect after giving the treatment using Edmodo, for example the question no. 12: “learning reading comprehension using online activities increased my motivation in reading more English text”. The result of questionnaires administered to the students can be seen in Appendix.

3.4.3 Interview

Interview was conducted to gain data from the English lecturer and six students at first semester of PGSD study program. Conducting interview was valuable to gain the data. Maxwell (1996, p. 76) says that ‘interviewing can be a valuable way of finding a description of actions and events. It can give supplementary information that was missed in observation and could be used to check the accuracy of the observations.

3.4.4 Observation

To find out the implementation of blended learning using Edmodo in actual teaching and learning reading comprehension process, classroom observation was employed. Van Lier (1988) cited in Duff (2008) states that many case study in applied linguistics employed observation especially when the objectives of the study is to investigate people’s linguistic performance or interaction in actual situation.

The observation was conducted 8 times by watching the process of teaching and learning reading comprehension both in Virtual class (via Edmodo) or face-to-face class. The result of the observation are transcribed and converted to field note as a primary data.

In conducting the research the following steps has been taken:

1. Finding out some theories and concepts related to Reading comprehension, technology or technology for teaching reading comprehension, Virtual Learning Environment (VLE), and attitude.

2. Selecting the participants. From 146 students of first grade of non-English department of a State University in West Java, 60 students are randomly chosen, with equal number of male and female. Further, they are classified into two groups, i.e 30 students for experimental group and 30 students for control group.
3. Distributing pre-test to the students.
4. Observing the class meeting both in virtual online class (via Edmodo) or offline.
5. Interviewing the students and the lecturer;
6. Distributing post-test to the students.
7. Calculating the data from pre-test and posttest using SPSS 21 software.
8. Distributing the questionnaires to the students;
9. Analyzing the obtained data from students' pre-test and post-test, observation, interview and questionnaires;
10. Interpreting the findings from those instruments; and
11. Drawing conclusion based on the obtained data.

3.5 Data Analysis

This section describes the procedures and formula to analyze the data from pre-test and post-test of reading comprehension, the questionnaire given both experimental and control group, observation, and interview.

3.5.1 Test

To test whether the treatment has an impact on the experimental group, the data were collected through the pre-test and post-test. The study used *t*-test formula, Case studies or independent sample test (Hatch and Farhady, 1982, p. 111). The formula is as follows:

$$t_{obs} = \frac{\text{difference between 2 sample means}}{\text{standard error of difference between means}}$$

After the *t*-obs obtained, the result was consulted with the *t*-critical value. If the *-t*-obs is lower than the *t*-critical value, it can be interpreted that there is no difference between blended learning class using Edmodo and face-to-face class in

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terms of teaching reading comprehension. On the other hand, if the t -obs is higher than the t -critical value, then, it can be interpreted that there is significant difference between blended learning class using Edmodo and face-to-face class in terms of teaching reading comprehension (Hatch and Farhady, 1982).

3.5.1.1 Pilot Test Data Analysis

The pilot test was conducted to find out whether or not the instrument was valid and reliable. In other words, it was to see if the test was appropriate to use or not.

3.5.1.2 Validity Test

As it was named, this test was used to see whether the test was valid or not. This means that the test was carried out to see whether the test measured what was supposed to be measured (Fraenkel and Wallen, 1990). To test the validity of the instrument, Pearson Product Moment in SPSS 21 for Windows was performed.

3.5.1.3 Difficulty Test (Item Facility)

In addition to the validity of the instrument, difficulty and discrimination of the instrument needed to be tested as well. Fulcher and Davidson (2007) state that difficulty (item facility) is defined simply as the proportion of test takers who answer item correctly whereas discrimination is defined as the capability of the test, in this study it is the instrument, of discriminating between higher and lower ability of test takers.

To calculate the difficulty (facility item) of the test, the formula was the number of correct answers of each question divided by the number of the test takers with the acceptable range being from around 0.3 to 0.7 (Henning, 1987:50, cited in Fulcher and Davidson, 2007).

3.5.1.4 Discrimination Test

Fulcher and Davidson (2007) also state that the most commonly used method of calculating item discrimination is the point biserial correlation. Here is the formula they offer:

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THE IMPLEMENTATION OF BLENDED LEARNING METHOD USING EDMODO (A SOCIAL NETWORKING SITE) IN TEACHING READING COMPREHENSION

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$$r_{pbi} = \frac{x_p - x_q}{s_x} \sqrt{pq}$$

Where:

r_{pbi} = point biserial correlation

X_p = mean score on the test for those who get the item correct

X_q = mean score on the test for those who get the item incorrect

S_x = standard deviation of test scores

p = the proportion of test takers who get the item correct (facility value)

q = the proportion of test takers who get the item incorrect.

3.5.1.5 Reliability Test

In addition to the validity, difficulty (item facility), and discrimination tests, reliability test was also performed in this study. It simply aimed at seeing whether or not the test gave consistent results (Fraenkel and Wallen, 1990). To test the reliability of the instrument, Alpha Cronbach in SPSS 21 for Windows was performed.

3.5.1.6 Pre-test Data Analysis

Both experimental and control groups got pretest and posttest. The pretest mainly aimed to see students' initial scores and it was expected that their scores were relatively similar to each other so that it could be assumed that what improved their scores was the treatment. After getting the scores of the posttest, there were several tests conducted including normality of distribution test, variance homogeneity test, and then independent t-test.

3.5.1.7 Normality of Distribution Test

To see if the data were normally distributed, there was also a test. In SPSS 21, Kolmogorov-Smirnov was used to analyze it. First of all, the hypothesis and the alpha level of 0.05 were stated. Second of all, the data distribution was analyzed using Kolmogoro-Smirnov Test. Lastly, the result *Asymp. Sig* was compared with the level of significance. This was to test the hypothesis. When the

Asymp sig was more than the level of significance, the hypothesis was accepted, meaning that the data were normally distributed.

3.5.1.8 Variance Homogeneity Test

If the data were normally distributed, variance homogeneity test took place after that. First step of this test was stating the hypothesis and the alpha level of 0.05. Second step was analyzing the variance homogeneity test. Third step was comparing the *Asymp sig* with the level of significance. If the *Asymp sig* was larger than the alpha level, the hypothesis was retained. It means that the data variances were homogenous.

3.5.1.9 Independent t-Test

Due to the normality of data distribution and variance homogeneity of this study's data, the data were parametric. Then independent *t*-test was performed to compare the means of both experimental and control groups.

In the independent *t*-test, first step was stating the null hypothesis (H_0) and the alternative hypothesis (H_a). The hypotheses are as follows:

H_0 : There was no significant difference between the group that made text summary and the group that did not make it.

H_a : There was significant difference between the group that made text summary and the group that did not make it.

Next step was determining the value of the suitable *t* and *df* (degree of freedom). When the values were obtained already, the *sig.* value which aligned with them was then compared with the alpha level of 0.05. If the *sig.* value was smaller ($p < 0.05$), the null hypothesis was rejected which means that there was significant difference between both groups and vice versa.

3.5.1.10 Post-test Data Analysis

The post-test data analysis was exactly the same as that of the pre-test data analysis. The primary distinction lied on the purpose. The purpose of the pre-test was merely to see both groups' difference prior to the treatment while the purpose of the post-test was to see whether the treatment made any significant difference

in students' achievement.

3.5.2 Questionnaire

The data from questionnaires were coded and scored. The findings from the questionnaires were analyzed in accordance with the students' post test scores. Before they were further analyzed, the attitudes were crosschecked with the students to avoid misinterpretation. Having crosschecked, the data were analyzed, interpreted and explained in relation to the theories in Chapter II. This was aimed to strengthen the result if the students' attitude toward the implementation of blended learning using Edmodo was significance in improving the students' reading comprehension.

3.5.3 Observation

The data classroom observation both in online or offline classroom were in the form of video recording and captured photo. The data was aimed to reveal the implementation of blended learning using Edmodo in teaching reading comprehension. The result of the observation were transcribed and converted to field note as a primary data.

3.5.4 Interview

The data from interview were in the form of voice recording. The voice recording was analyzed and categorized to gain information related to the research question about the implementation of blended learning using Edmodo as in teaching reading comprehension. The interview was used to strengthen the data taken from the observation.

3.6 Concluding Remark

This chapter has discussed the methodology of the study that used mix (quantitative and qualitative) as a method and approach. A quantitative model used in this study was true experimental whereas a qualitative method used in this study was a case study. The data were collected through pre-test and post-test of reading comprehension, questionnaires, interview, and observation. The data were then analyzed under the theory of the implementation of blended learning using

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Edmodo in teaching reading comprehension. The analysis of the findings will be discussed in the next chapter.