CHAPTER III

METHODOLOGY

This chapter will elaborate the mechanism on how the research is conducted. The design, participant, data collection and data analysis technique will be explained below.

3.1 Research Questions

As aforementioned in chapter I, this study was conducted to answer the following research question: (1). Does journal writing improve students' writing ability?; (2). Does journal writing improve students' self-efficacy?

3.2 Research Design

To achieve the research purposes as stated in sub 1.3 this study will use quantitative research method. According to Cresswell (2014, pp. 291)

> Quantitative research is an approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures.

This research was quantitative research which used one-group pretest-posttest design. One class as experimental group was treated by using an intervention.

Table 3.1 Research Design (Cresswell, 2009)

Time / Group	Pre-test	Intervention	Post-test
Experiment	μ1	X	μ2

Table 3.1 shows that the research used pre-experimental research with only one group as experiment. The pre-test was conducted on the first meeting to know students' ability in writing as well as the level of self-efficacy. Students were asked to

write their personal experiences without given any theme. The intervention was given in the form of journal writing which should be collected for seven times. The post-test was conducted to know students' improvement on writing by being given a task to write their personal experience with the same topic in the pre-test.

3.2.1 Variables

Quantitative research focuses on testing objective theories by examining the relationship among variables (Hamied, 2017). Two variables named independent and dependent variables were tested in this research. According to Cresswell (2012), the two major types of independent variables were treatment and measured variables. Therefore, the independent variable in this research was free journal writing. Concurrently, students' score in writing recount text and students' self-efficacy were the dependent variable that were observed and measured after the students were given treatment.

3.2.2 Research Hypothesis

As an experimental study, it was common to use hypothesis to state the prediction of the research outcome (Cresswell, 2009). The first null hypothesis (H_0) implied that the use of journal writing results no difference in students' writing performance before and after interventions. It means that the treatment is failed to improve students' writing score. As Cresswell (2009) stated that treatment was considered effective if null hypothesis was rejected.

$$H_0: \mu 1 = \mu 2$$

The second Null hypothesis (H_0) implied that the use of journal writing results no difference in students' self-efficacy. If the score of students' self-efficacy on pre-test and post-test was same, the intervention is not effective.

3.3 Population and Sample

Frankel et al (2012, p.91) stated that sample is the group on which the information is obtained, while population is the larger group to which one hopes to apply the results. The sample was chosen by using probability sampling namely random samples. As stated by Wright (1976, p. 214), random sample is one selected so that all members of the population have the same probability of being selected. Sample of this research was taken from 33 students in first semester of 2018/2019 academic year consisted of thirteen males and twenty females. The samples of the research are hoped to represent the population. As the class consist of three students of the children of air force, two students of teacher's children, eight students of underprivileged family, seven students of residents, two students from achievement and eleven students from academic. Whereas, population of this research was the first grade students in one senior high school in Bandung.

3.4 Data Collection

The data for this study were collected from the instruments of pre-test, post-test, administering questionnaire and interview.

3.4.1 Pre-test and Post-test

The pre-test was carried out in the classroom on July, 23 2018 aimed to know students' ability in writing skill. Therefore, it was given in the first meeting to find out the students' ability before they got treatment. In 90 minutes, students were asked to write their personal experience on the student's sheet. While, post-test was done after students practiced their writing by using journal writing for seven times. Post-test was done on August, 7th 2018. The students were obliged to write the text based on the theme given by the researcher with the same length of time with pre-test. Then, the writing test acquired from both tests was scored by two raters. To get students' writing recount text score, a scoring rubric was adapted from Jacobs (1981). The adapted scoring rubric consisted of five important aspects which are content, organization,

vocabulary, language use and mechanics. The scoring rubric can be seen from the Table 1.

Table 3.2. Writing Scoring Rubric adapted from ESL Composition Profile by Jacobs, et al. (1981).

SCORE	LEVEL	CRITERIA	COMMENTS
CONTENT	30-27	**EXCELLENT TO VERY GOOD**: knowledgeable • substantive • thorough development of thesis • relevant to assigned topic	
	26-22	**GOOD TO AVERAGE**: some knowledge of subject • adequate range • limited development of thesis • mostly relevant to topic, but lacks detail	
	21-17	**FAIR TO POOR:** limited knowledge of subject • little substance • inadequate development of topic	
	16-13	**VERY POOR**: does not show knowledge of subject • non-substantive • not pertinent • OR not enough to evaluate	
ORGANIZATION	20-18	**EXCELLENT TO VERY GOOD**: fluent expression • ideas clearly stated/ supported • succinct • well-organized • logical sequencing • cohesive	
	17-14	**GOOD TO AVERAGE**: somewhat choppy • loosely organized but main ideas stand out • limited support • logical but incomplete sequencing	
	13-10	**FAIR TO POOR**: non-fluent • ideas confused or disconnected • lacks logical sequencing and development	
	9-7	**VERY POOR**: does not communicate • no organization • OR not enough to evaluate	
VOCABULARY	20-18	**EXCELLENT TO VERY GOOD**: sophisticated range • effective word/ idiom choice and usage • word form mastery • appropriate register	
	17-14	**GOOD TO AVERAGE**: adequate range • occasional errors of word/ idiom form, choice, usage *but meaning not obscured*	
	13-10	**FAIR TO POOR**: limited range • frequent errors of word/ idiom form, choice, usage • *meaning confused or obscured*	
	9-7	**VERY POOR**: essentially translation • little knowledge of English vocabulary, idioms, word form • OR not enough to evaluate	
LANGUAGE USE	25-22	**EXCELLENT TO VERY GOOD**: effective complex construction • few errors of agreement, tense, number, word order/ function, articles, pronouns, prepositions	

	21-18	**GOOD TO AVERAGE**: effective but simple construction • minor problems in complex constructions • several errors of agreement, tense, number, word order/ function, articles, pronouns, prepositions *but meaning seldom obscured*	
	17-11	**FAIR TO POOR**: major problems in simple/ complex constructions • frequent errors of negation, agreement, tense, number, word order/ function, articles, pronouns, prepositions an/or fragments, run-ons, deletions • *meaning confused or obscured*	
	10-5	**VERY POOR**: virtually no mastery of sentence construction rules • dominated by errors • does not communicate • OR not enough to evaluate	
MECHANICS	5	**EXCELLENT TO VERY GOOD**: demonstrate mastery of conventions • few errors of spelling, punctuation, capitalization, paragraphing	
	4	**GOOD TO AVERAGE**: occasional errors of spelling, punctuation, capitalization, paragraphing *but meaning not obscured*	
	3	**FAIR TO POOR**: frequent errors of spelling, punctuation, capitalization, paragraphing • *meaning confused or obscured*	
	2	**VERY POOR**: no mastery of conventions • dominated by errors of spelling, punctuation, capitalization, paragraphing • OR not enough to evaluate	
TOTAL SCORE:		READER:	COMMENTS:

Adapted from Jacobs et al. (1981) in Hughes (2003).

3.4.2 Questionnaire

Self-efficacy instruments may ask students to rate their confidence to perform particular reading or writing tasks (Shell, Colvin, and Bruning, 1995, in Pajares, 1996). Therefore, the questionnaire used in this research was used to measure students' self-efficacy. Sixteen statements adapted from Bruning, Dempsey, Kauffman, McKim, and Zumbrunn (2013) have three subscales. The first five statements reflect students' belief about ideation which is generating, developing, and communicating new ideas (Jonson, 2005). The next statements reflect students' belief about conventions. And the last six questions reflect students' belief about self-regulation.

Table 3.3 Three-Factor Model of Writing Self-Efficacy: Middle School Students

Factor Loading	Factor and Item
Ideation	I can think of many ideas for my writing.
	I can put my ideas into writing.
	I can think of many words to describe my ideas.
	I can think a lot of original ideas.
	I know exactly where to place my ideas in my writing.
Conventions	I can spell my words correctly.
	I can write complete sentences.
	I can punctuate my sentences correctly.
	I can write grammatically correct sentences.
	I can begin my paragraphs in the right spots.
Self-Regulation	I can focus on my writing for at least one hour.
	I can avoid distractions while I write.
	I can start writing assignments quickly.
	I can control my frustration when I write.
	I can think of my writing goals before I write.
	I can keep writing even when it is difficult.

In 30 minutes' students were asked to score the statement based on their perceptions by using ordinal scale. To avoid misinterpretation by the students, the questionnaire was translated into Indonesian.

3.4.3 Interview

Interview was done to explore students' perception toward journal writing. It was also used to know how students form their self-efficacy belief. The questions were formulated based on the sources of self-efficacy as aforementioned on chapter 2 that is performance outcomes, vicarious experience, verbal persuasion and physiological feedback. The interview was conducted by using semi structured interview. It means that all students were asked same questions in the same order. Furthermore, the questions were in open-ended form.

In this study, face to face interview was implemented to obtain in-depth information from participants (Cresswell, 2009). The researcher used audio recording to ease the process of gathering the data. During the interview, there were four students from two different levels of achievement involved. Two students with improvement on their writing and self-efficacy were interviewed to know their perception. And two students with no improvement were chosen as the interviewee to find out the problem within students' self.

3.5 Data Analysis

3.5.1 Score Data Analysis

Students' writing on pre-test and post-test were scored by two raters, the researcher and the pre-service teacher in that school. The intention of using two raters is to maintain the validity of the score. In order to have the same perception in assessing the students' writing, the researcher had explained the writing scoring rubric assessment used in the study for the second rater before they assessed the students' text. Based on the agreement between two-raters, the mean score of both raters were used as the final score of the student.

The final scores were further calculated to examine the effect of journal writing on students' writing ability. This aimed to test the null hypothesis of the study which stated that the use of journal writing as interventions does not affect students' writing ability. There were several steps to test the hypothesis, namely normality

distribution test, homogeneity test and comparing means. To avoid miscalculation, the data taken from the test would be analyzed by using SPSS 24 for windows.

3.5.1.1 Normality Distribution Test

Normal distribution test is used to investigate whether the data is normally distributed. According to Hamied (2017), data is normally distributed when the scores larger than mean score balance out the scores less than the mean score. There are two basic assumptions of the normal distribution test, namely:

1. If the level of significance value is less than (<) 0,05, the data is not normally distributed.
2. If the level of significance value is more than (>) 0,05, the data is normally distributed.

The scores of the students in pre-test and post-test were measured by using Shapiro-Wilk as the sample in this research is small. Moreover, normality distribution test is done to know whether the data is parametric or non-parametric. When the data is normally distributed, it means that the data is parametric. Conversely, when the data is not normally distributed, it means that the data is non-parametric. The result will determine which test should be used to compare means.

3.5.1.2 Homogeneity of Variance Test

Homogeneity of variance test is used to determine whether the data are homogenous. By using Levene Statistics the score of students' pre-test and post-test were measured. If the significance result of homogeneity test is >0,5, it means that the data is homogenous. The basic assumption of homogeneity of variance test is presented below.

1. If the level of significance value is less than (<) 0,05, the data is not homogenous.
2. If the level of significance value is more than (>) 0,05, the data is homogenous.

3.5.1.3 Comparing Means Test

The third step that should be done is comparing means test. If the data is normally distributed, then the data is measured by using One Sample T-test or Paired T-test. Paired T-test is done to compare means from the same group at different times (pre-test and post-test) (DeCoster, 2006). On the other hand, if the data is not normally distributed, it means that the median of the data will be calculated by using Wilcoxon Signed Rank.

As the calculation will be helped by SPSS, the steps in analyzing the students' score by using paired t-test are explained below.

1. Open SPSS 24 for Windows
2. Click "Variable View" on SPSS data editor.
3. Type "Pretest" and "Posttest" on the "Name" Column
4. Click "Data View" on SPSS data editor.
5. Input the score of students' pre-test on "pretest" column and score of students' post-test on "posttest" column.
6. Click "Analyze"→ "Compared Means" → "Paired Samples T-Test
7. Insert "pretest" into variable 1 and "posttest" into variable 2
8. Click OK. Then, the result will be appeared.

3.5.1.4 Effect Size

After calculating the paired t-test, the effect size calculation was done to investigate the effect of journal writing treatment toward students' improvement in writing ability. It is the way to consider how well the treatment worked (Coolidge, 2000, p.151). The calculation was done manually with the following formula.

$$r = \sqrt{\frac{t^2}{t^2+df}}$$

Description:

r = effect size

t = t value obtained from the calculation of paired t-test

df = degree of freedom (n-1)

the scale of effect size is interpreted in the following table.

Table 3.4 The Scale of Effect Size

Effect Size	r Value
Small	0.100
Medium	0.243
High	0.371

3.5.1.5 Calculation of Gain Score and Normalized Gain

After scoring students' writing, the data was then processed to find the gain and Normalized Gain scores. Gain score is obtained from the difference between pretest and posttest. The scores were calculated by using Microsoft office excels in order to simplify the score tabulation. The following formula is for determining the Gain Score:

$$G = S_t - S_i$$

Description:

G = Gain Score

S_t = Post-test Score

S_i = Pre-test Score

The effect of journal writing on students' writing ability was determined from the result of Normalized Gain. From this calculation, the result showed how students'

writing ability improved on each aspect. The enhancement of students' writing ability was calculated by using Hake formulation (1999) below.

$$\text{Normalized gain (<g>)} = \frac{Score\ (Posttest) - Score\ (Pretest)}{Score\ (Ideal) - Score\ (Pretest)}$$

Table 3.5 Criteria of Normalized Gain Index

Normalized Gain Score	Interpretation
(<g>) > 0.7	High
0.3 < (<g>) > 0.7	Medium
(<g>) < 0.3	Low

3.5.1.5 Analysis Students' Writing

Students' writing was analyzed based on the aspects measured in the scoring rubric. Hence, there would be five aspects, they are content, organization, vocabulary, language use and mechanics. The analysis would take two examples for each aspect. Based on the normalized gain calculation, students' writing with medium and low improvement on each aspect would be chosen for the analysis.

3.5.2 Questionnaire

The questionnaire used in this research was adapted from Bruning, Dempsey, Kauffman, McKim, and Zumbrunn (2013). Both validity and reliability were checked in order to know that the questionnaire is consistently and systematically measuring what the researcher wants to measur (Trochim, 2006). To gather the data for analysis of validity and reliability, the questionnaire was first tested to thirty students in the pilot test to know the test the reliability and validity.

3.5.2.1 Validity and Reliability

The validity and reliability of the questionnaire about students' self-efficacy was measured by using SPSS. Validity test is conducted to ensure that the questionnaire can measure what the researcher wants to measure. The validity of the questionnaire was measured by using Pearson Correlation. There are testing criteria in checking validity of the questionnaire.

1. It is valid if the correlation value (Pearson correlation > r table)
2. It is invalid if the correlation value (Pearson correlation < r table)

Description:

r table = N

N = Number of observations or respondents

**The number of r table can be seen from the distribution score of r table significance 5% and 1% (see Appendix).*

While the reliability of the questionnaire was measured by using Cronbach's Alpha on SPSS. The function of checking the reliability of the questionnaire is to check the level of consistency. As reliability is also defined as "consistency" or "repeatability" (Trochim, 2006). There are testing criteria in measuring reliability.

1. It is consistent if the Cronbach's alpha is more than (>) r table
2. It is not consistent if the Cronbach's alpha is less than (<) r table

3.5.2.2 Normality Distribution and Comparing Means Test

After the score of students' self-efficacy on pre-test and post-test were gathered, the data was measured by using normality distribution test and comparing mean test by using SPSS similar with the process of calculating the writing score.

3.6 Interview

The first thing to do in analyzing the result from the interview was transcribing the audio into text. Then, the answers of the students were analyzed to reveal the answer of the second research question.

3.7 Research Procedure

The participants (students) were obliged to write minimal five sentences of recount text three times a week with the format given by the teacher. Students' writing was collected on Monday, Wednesday, and Friday. On the next two days, every student would be given feedback by the teacher. They kept their own journal, so they know the improvement of their writing.

The following table shows the research time table.

Table 3.6 Research Schedule

No.	Date	Activity
1.	19 July, 2018	Pilot Test This test was conducted to 30 students in different class with the intention to check the validity of the questionnaire.
2.	23 July, 2018	Pre-test Students were asked to write personal experiences on the paper provided by the teacher. After finishing the task, students were asked to fill in 16 statements on self-efficacy questionnaire.
3.	25 July, 2018	Free Journal Writing 1

		Students collected their first journal writing about their personal experience. They also received their pre-test writing with the feedback from the teacher.
4.	27 July, 2018	Free Journal Writing 2 Students collected their second journal writing about their personal experience. They also received their first journal writing with the feedback from the teacher.
5.	30 July, 2018	Free Journal Writing 3 Students collected their third journal writing about their personal experience. They also received their second journal writing with the feedback from the teacher.
6.	1 August, 2018	Free Journal Writing 4 Students collected their fourth journal writing about their personal experience. They also received their third journal writing with the feedback from the teacher.
7.	3 August, 2018	Free Journal Writing 5 Students collected their fifth journal writing about their personal experience. They also received their fourth journal writing with the feedback from the teacher.
8.	6 August, 2018	Free Journal Writing 6 Students collected their sixth journal writing about their personal experience. They also received their

		fifth journal writing with the feedback from the teacher.
9.	7 August, 2018	Free Journal Writing 7 Students collected their seventh journal writing about their personal experience. They also received their sixth journal writing with the feedback from the teacher.
11.	7 August, 2018	Post-test Students were asked to write personal experiences which was similar to their topic on pre-test. After that, students were asked to fill in 16 statements based on their feeling on self-efficacy questionnaire.
12.	9 August, 2018	Conducting interview From the result of self-efficacy questionnaire and writing score, about two students with improved writing score and self-efficacy and two students with low or decreased writing score and self-efficacy were interviewed by the researcher.

3.8 Concluding Remark

This chapter has discussed the methodology used in this study. It has covered the research design, population, sample, data collection, data analysis and research procedure.