

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter discusses the methodology of the present study. It comprises the formulation of problems in form of research questions. In addition, an explanation of research design consisting of research variables, and population and sample is discussed. This chapter further elaborates the hypotheses, data collection, research procedures, and data analysis of the presented study.

3.1 Formulation of Problems

As mentioned in the introduction, this study was conducted to answer presented research questions.

1. Does the use of scaffolding in teaching writing lead to the improvement of students' writing performance?
2. What are students' responses toward the scaffolded writing strategy?

3.2 Research Design

The study used a sequential explanatory design (Creswell, 2008). The sequential explanatory design combined quantitative and qualitative approach (Bryman, 2006). It started with the collection and analysis of quantitative data followed by subsequent collection and analysis of qualitative data. The focus of the study was on quantitative strand, whereas qualitative strand was aimed at supporting the result of hypothesis testing (Bryman, 2006; Creswell, 2008).

Regarding the use of quantitative approach, this study employed a pre-experimental research (Creswell, 2008). It involved one experimental group. The use of one group experimental research is to investigate the use of scaffolding with respect to the students' writing performance. Pre-experimental design is used due to the limitation of time allotment and feasibility of sample selection in this study. Hence, this study used cluster sampling method (Creswell, 2008) in which the group had been established long before the study conducted. It was considered advantageous because it enhanced the naturalness of the settings.

Pre-experimental design, in addition, has no external validity (Creswell, 2008). Therefore, this study limited the generalisation to the target population. This study attempts to provide a justification of established theory, in this case, scaffolding which is proposed as variable of the study (see further section).

In addition, pre-experimental, or one group experimental design, often referred as a quantitative case study (Watt & Berg, 2002, p. 206). The results may shows a certain phenomenon in a certain population through quantitative approach. When the direction is supported by the results of previous studies, the researcher can confidently draw the conclusions. However, when it has a reversed direction, the results may suggest hypotheses, which later can be tested under more controlled circumstances (Watt & Berg, 2002).

Furthermore, following table shows the illustration of research design of the study presented.

Table 3.1 Research Design (Creswell, 2008)

	Time		
Group	Pre-test	Intervention	Post-test
Experiment	μ_1	x	μ_2

Table 3.1 shows that the research used one group, which was given a pre-test, an intervention, and a post-test. The pre-test was administered in the beginning of research. This test comprised an essay composition test in which students were asked to write a recount text based on their personal experience (see Appendix B). Furthermore, the intervention was a teaching program, which implemented the use of scaffolding in teaching writing. The intervention was designed in seven meetings (see section 3.5.3 for the procedure, and Appendix A for the lesson plans). The post-test was administered in the last session of teaching program. The item of the test was similar with pre-test. Post-test samples are also available in Appendix B. Therefore, the explanation of research procedure will be presented in section 3.5.

In qualitative phase, the study used analysis of student texts and interview. Analysis of student texts was used in order to support the result of hypothesis testing. Students' texts were taken during the teaching program, in the pre-test and post-test. Furthermore, interview was conducted in order to find a deep investigation of students' response and attitude toward the use of scaffolding in teaching writing. The interview was accomplished in form of group-focused interview. It was conducted after the teaching programs.

3.2.1 Research Variables

The variables in this study are categorized into two variables, namely independent and dependent variable.

Firstly, there was the program in the use of scaffolding in teaching writing as independent variable. Scaffolding was the treatment or manipulated variable. The aim was to investigate the effect of scaffolding on the dependent variable (Fraenkel & Wallen, 1993).

Secondly, the dependent variable was students' performance of writing recount text. The dependent variable was a variable that was observed and measured to determine the effect of the independent variable (Creswell, 2008).

3.2.2 The Population and Sample

The participants of this study were the tenth grade students of one private vocational high school in Bandung in the academic year of 2013/2014. The selection of participants was due to the following reasons. First, they had already studied English in schools. Second, it was possible to carry out the investigation, in which writing was taught for ten grader students. Third, the researcher was a teacher in the selected school, so it was viable to conduct the study. Last, the participants were available.

The population contained four classes. They were classified into two skills major, i.e. business and management, and information and communications technology.

The business and management major had two skill programs, which were office administration and accounting program. Furthermore, the information communication technology major had one skill program consisting of multimedia. Then, the population data showed that there were 67 students of the tenth grade students. The data are presented in Table 3.2 as follow.

Table 3.2 Students' Population

Major	Program	Class	Number
Business and Management	Office Administration	AP	14
	Accounting	AK	20
Information Communication Technology	Multimedia	MM	33
Total			67

Furthermore, this study used an available class in the schools as the participant, that is to say, AK class. The class was assigned to be treatment group. The number of students taken as the sample was 20 students.

With regard to the illustration of the change between pre-test and post-test writing, the presented study used purposive sampling method (Creswell, 2008). Three student texts in pre-test and three student texts in post-test were used, in which there were two student texts from low achiever, two student texts from middle achiever, and two student text from high achiever students respectively which is grouped from the pre-test result. Hence, there were six student texts taken in analysis.

In order to find out the students' responses, purposive sampling method (Creswell, 2008) was also used. There were nine students involved in the interview. It consisted of three high achiever, three middle achiever, and three low achiever students on treatment class based on post-test result.

3.3 Hypothesis

Hypothesis is a prediction of some sort concerning the outcome result of the study (Coolidge, 2000). As an experimental study, it was common to use the null

hypothesis to state the prediction of the research outcome (Creswell, 2008). Therefore, the hypothesis was formulated as follows:

$$H_0: \mu_1 = \mu_2$$

Null hypothesis (H_0) implied the use of scaffolding results no difference in students' writing performance before and after intervention. It failed to differentiate the student's ability. Treatment was considered effective if null hypothesis was rejected (Creswell, 2008).

3.4 Data Collections

To obtain the data, there were two instruments used in this study. The first instrument was students' writing test in which students were asked to write recount text based on the topic selected by the teacher. The second instrument was conducting the interview.

3.4.1 Writing Tests

Writing tests were used to measure students' writing performance of writing recount texts. Writing tests were employed to the experimental group twice, in the first session (as pre-test) and the last session (as post-test) of teaching phase. In the beginning, students were given a diagnostic writing to collect the data about their initial writing ability. The tests contained a task where students were asked to write a recount story based on their experiences in forty minutes. The instruments can be seen in Appendix B.

3.4.2 Interview

Interviews put the researcher in personal contact with the participant. Thus, they could provide an opportunity to ask follow-up questions, reveal rich insights into the thinking of the participants. Interviews provide even more opportunity for respondents to raise their own issues and concerns (Seidman, 2006).

Interview was conducted in order to find a deep investigation of students' response and attitude toward the use of scaffolding in teaching writing. The interview was accomplished in form of group-focused interview. It was conducted after the teaching programs. Semi-structured interview has been applied since it allowed the researcher to respond to the situation at the time, to the emerging worldview of the respondent, and to new ideas on the topic (Nunan, 1992).

The interview schedule contains several open-ended questions to make students' answer in line with the focus of the study. Generally, the interview consists of questions related to (1) students' personal feelings, attitude, and goals; (2) the sensory nature of stimulus; (3) the background or setting of stimulus; and (4) students' learning experiences as suggested by Harnad (1982, cited in Kusumandasari, 2012). The interview schedule is available in Appendix E.

3.5 Research Procedures

The research procedures of this study were preparing the lesson plan, administering pre-test, teaching program (intervention), administering post-test, and conducting the interview, which elaborated as follows.

3.5.1 Preparing the Lesson Plan

The instrument used in this research for treatment purposes was lesson plan, which was designed for seven meetings. The lesson plan was developed to suit the curriculum for vocational high school (See Appendix A for the lesson plan). Recount text was selected, as it was appropriate with the basic competence, which was being taught. Recount text was used to tell something happened in the past (Gerot & Wignell, 1995). The lesson plan, furthermore, was applied to the intervention session (teaching program).

3.5.2 Administering Pre-test

Before the teaching program, the pre-test was administered to experimental group at the beginning of the program. It aimed to find out the students' initial writing

performance in writing recount texts before the intervention. This test comprised an essay composition test in which students were asked to write a recount text based on their personal experience. In addition, the instrumentation and example of students' pre-test can be seen in Appendix B.

3.5.3 Teaching Program

Teaching program as the intervention began after conducting the pre-test as diagnostic writing. The intervention in this study implemented the scaffolding in teaching writing in the classroom. As previously stated, the intervention was given to the treatment group in seven meetings. It was done in two cycles of the process of teaching writing, i.e. prewriting, drafting, and revising phases, and further the cycle went back to the prewriting phase respectively.

The prewriting phase involved class presentation, which emphasized the use of bridging, contextualizing, modelling, and offering explanations. Furthermore, the phase of drafting involved students' writing practices both in-group and independently, which emphasized the use of schema building and iterative practise. Likewise, the revising phase involved some activities done both in-group and individually, which emphasized the use of developing metacognition and feedback scaffolds. Furthermore, the research schedule was conducted as follows.

Table 3.3 Research Schedule

Date	Session	Activity	Description
Feb 19, 2014		Pre-test	
Cycle 1			
Feb 20, 2014	1	Implementation of bridging and contextualizing	Class presentation, pre-writing phase
Feb 26, 2014	2	Implementation of modelling and offering explanation	Class presentation, pre-writing phase
Feb 27, 2014	3	Implementation of schema building and iterative practices	Drafting
Mar 5, 2014	4	Implementation of developing metacognition and feedback	Revising
Cycle 2			
Mar 6, 2014	5	Implementation of bridging, contextualizing, modelling, and offering explanation	Class presentation and pre-writing phase

Date	Session	Activity	Description
Mar 19, 2014	6	Implementation of schema building and iterative practices	Drafting
Mar 20, 2014	7	Implementation of developing metacognition and feedback	Revising
Mar 26, 2014		Post-test	

In addition, the teaching program is elaborated as following steps.

Step 1: the implementation of bridging and contextualizing

First step was the implementation of bridging and contextualizing. As discussed in chapter two, bridging and contextualizing might involve some activities, as suggested by Hammond (2001), Gibbons (2002), Derewianka (2003), and Emilia (2010), to explore students' experience. The activities involved providing pictures or videos related to the topic given, providing discussion, guessing the content, and introducing relevant vocabulary. The pictures used in this activity should be meaningful and close to the students' daily life.

In first meeting, some of "travel destination" pictures, and a documentary video about "travelling" were presented. Furthermore, providing discussion related to the topic was able to extend students' understanding towards the topic. Teacher formulated several questions and let students discuss the topic, such as "*What do you think about this place?, Did you ever go to the place?, Where did you go in the holiday?*". Some recount texts were introduced to the students. Teacher let students guess the content of the text from its title. Students were encouraged to read aloud the text. Some relevant vocabularies in text were introduced and explored in order to give students opportunities in developing some simple understanding before they use complex discourse.

In the fifth session, the pictures, videos, and texts used were different with the material in the first session; however, the topic of pictures and videos were "travelling" and "holiday". Some texts were taken from the student's writing in the fourth meeting, such as "My Holiday", "My Travelling to Bali", "Trip to Anyer", and "Birthday Surprise".

In addition, the use of bridging and contextualizing were mostly emphasized in first session and fifth session of teaching program. In the first session, the questioning activities were mostly used to invite students' participation. Teacher had more control in this session. However, in the fifth session, the questions were developed by the students, which mean students took more control over the classroom activities.

Step 2: the implementation of offering explanation and modelling

Second step was the implementation of offering explanation, and modelling. As suggested by Knapp & Watkins (2005) and Emilia (2010). These types of scaffolding involved some activities such as read the text model, familiarize the students with the function and social context of the text, explain the schematic structure of the text, present an overview of grammatical features of the text, and use text model as a cloze exercise. There were two recount texts introduced in the second session entitled "My Holiday" and "Picnic near the River". In the fifth session, some of texts from prior session such as "My Holiday", "My Travelling to Bali", "Trip to Anyer", and "Birthday Surprise" were presented. The texts were discussed in terms of function, schematic structure, and grammatical features. Students further practiced to identify the schematic structure of the texts, find the main idea of the paragraph on the texts, and identify the past simple verb on the texts. Teacher provided a worksheet relating past simple to familiarize students with the linguistic features of recount in the end of meeting.

The step was implemented in the second session, and fifth session along with bridging and contextualizing. In the second session, almost all students had difficulties in identifying schematic structure, main idea, and past simple verb of the text. However, in the fifth session, students had familiarized with function, schematic structure, main idea, and past simple verb and only students in low achiever group still faced difficulties. Some questions regarding reading comprehensions were given to the students in the end of the session, in order to

check students' understanding of the recount text in general before they moved to the drafting phase.

Step 3: The implementation of schema building and iterative practices

Third step was the implementation of schema building and iterative practise. In this stage, teacher decided the topic for students' writing (Gibbons, 2002). Students were grouped in to five groups (a group of four students). Teacher let the students discuss what they were going to write within the group as suggested by Emilia (2010). In order to apply schema building, a scaffolded writing plan was also used in this session, in which it used author language of the previous text to produce a new text (Axford, Harders, & Wise; 2009). Students were asked to create the framework of their writing plan within the group. In the end of session, teacher and students create a sample text recount collaboratively (Derewianka, 2003). Students use more than one text model in this step. This step was applied in the third and sixth session of teaching program. In the third session of program, mid and high achiever students could reconstruct the text model properly. In the sixth session of teaching program, almost all students could produce a new text based on writing plan. Some of them (students in high achiever group) could produce a new text without a writing plan.

Step 4: The implementation of developing metacognition and feedback

In this step, the scaffolding involved is developing metacognition and feedback. Firstly, teacher guided students to choose the topic used in their writing. The topic was "Holiday", "Best Moments/Experiences", and "Birthday". Students had 40 minutes to create a first draft. Therefore, students did a pair checking (Gibbons, 2002; Emilia, 2010) to check their friends' writing. They chose one of the closest student. Furthermore, teacher came to each student to do a pair checking of the writing, and to check their peer's feedback. Teacher gave a necessary feedback and then students finished their writing. However, as soon as students are able to independently writing, the scaffolding is gradually removed (Hammond, 2001; Gibbons, 2002; Emilia, 2010).

This step was applied in the fourth and seventh session of teaching program. In the fourth session, only students from high achiever group were actively to ask their friends to do a pair checking. Some of them were confused with the instructions, and some of them were not finishing their draft. However, in the seventh session, students were familiar with the instructions compared to the fourth session. Most of students could check their friends' work, which indicated that they began to develop their metacognition ability in writing. They understood about their errors in writing and they knew the correct form. They could give feedback such as questioning and praising, but only high achiever students could give evaluative and instructional comments on their peer's writing.

Likewise, it can be summarized that the use of scaffolding in teaching writing is useful in improving students' understanding. It is supported by students' score which proceeded by statistical procedure. In terms of writing performance, sample texts were taken from three students in pre-test and post-test, which further elaborated in the chapter four.

3.5.4 Administering Post-test

After the teaching program was done for seven meetings, the post-test was administered to experimental group at the end of the program. It aimed to find out the students' writing performance in writing recount texts after the intervention. This test comprised an essay composition test as same as pre-test in which students were asked to write a recount text based on their personal experience. The example of students' post-test can be seen in Appendix B.

3.5.5 Conducting Interview

As previously stated, interview was conducted in order to find a deep investigation of students' response and attitude toward the use of scaffolding in teaching writing. The interview was accomplished in form of group-focused interview. Semi-structured interview has been applied since it allowed the

researcher to respond to the situation at the time, to the emerging worldview of the respondent, and to new ideas on the topic (Nunan, 1992).

The interview schedule contains several open-ended questions to make students' answer in line with the focus of the study. Generally, the interview consists of questions related to (1) students' personal feelings, attitude, and goals; (2) the sensory nature of stimulus; (3) the background or setting of stimulus; and (4) students' learning experiences as suggested by Harnad (1982, cited in Kusumandasari, 2012). The interview schedule is available in Appendix E.

There were nine students from three different levels of achievement involved, i.e. three from low, three from mid, and three from high achiever level. It was conducted informally after the teaching programs. The interview was conducted in Bahasa Indonesia (students' first language) so that students could widely express their responses toward the use of scaffolding. The interview transcription is available on the Appendix F.

3.6 Data Analysis

As an explanatory sequential design study, the data analysis involved two phases of analysis, that is, analysis of quantitative and qualitative strand (Bryman, 2006). Quantitative strand involved scoring technique and hypothesis testing using paired sample t-test. Furthermore, qualitative strand involved analysis of student texts and interview results.

3.6.1 Scoring Technique

The test contained a task where students were asked to write a recount text story based on their experiences in forty minutes. The data were acquired to measure the ability of students' recount text writing. The task was conducted in the beginning and last session of the teaching program.

Furthermore, In order to obtain the data in a scored perception, this study used recount text scoring profile as suggested by Hyland (2004, p. 231). It covered

numeric score based on criteria in accordance to the text type being assessed, that is, recount text as shown in following table.

Table 3.4 Recount Scoring Profile (Hyland, 2004, p. 231)

Score	Content	Structure	Language
4 (excellent)	<ul style="list-style-type: none"> • Event explicitly stated • Clearly documents events • Evaluates their significance • Personal comment on events 	<ul style="list-style-type: none"> • Orientation gives all essential information • All necessary background provided • Account in chronological/other order • Reorientation “rounds off” sequence 	<ul style="list-style-type: none"> • Excellent control of language • Excellent use of vocabulary • Excellent choice of grammar • Appropriate tone and style
3 (good)	<ul style="list-style-type: none"> • Event fairly clearly stated • Includes most events • Some evaluation of events • Some personal comment 	<ul style="list-style-type: none"> • Fairly well-developed orientation • Most actors and events mentioned • Largely chronological and coherent • Reorientation “rounds off” sequence 	<ul style="list-style-type: none"> • Good control of language • Adequate vocabulary choices • Varied choice of grammar • Mainly appropriate tone
2 (fair)	<ul style="list-style-type: none"> • Event only sketchy • Clearly documents events • Little or weak evaluation • Inadequate personal comment 	<ul style="list-style-type: none"> • Orientation gives some information • Some necessary background omitted • Account partly coherent • Some attempt to provide reorientation 	<ul style="list-style-type: none"> • Inconsistent language control • Lack of variety in choice of grammar • Lack of variety in choice of vocabulary • Inconsistent tone and style
1 (poor)	<ul style="list-style-type: none"> • Event not stated • No recognizable events • No or confused evaluation • No or weak personal comment 	<ul style="list-style-type: none"> • Missing or weak orientation • No background provided • Haphazard and incoherent sequencing • No reorientation or includes new matter 	<ul style="list-style-type: none"> • Little language control • Reader seriously distracted by grammar errors • Poor vocabulary and tone

The scoring profile describes that those who got the score of 4 as having achieved the excellent score, those who got the score of 3 as having achieved the good score, those who got the score of 2 as having achieved the fair score, and those who got the score of 1 as having achieved the poor score. In addition, students’ score on pre-test and post-test can be seen in Appendix B.

3.6.2 Hypothesis Testing

Hypothesis testing involved the analysis of data on pre-test and post-test. Pre-test was administered in the beginning session of teaching program, while post-test was administered in the end session of teaching program. Both pre-test and post-test were an essay composition assignment, in which students were asked to write a recount text based on their experience.

Furthermore, the first step in analysing the pre-test and post-test data was analysing the normality of distribution. In order to conduct a parametric test, both pre-test and post-test data had to meet the assumption of normal distribution. One sample Kolmogorov Smirnov of non-parametric test was used to test the normality of distribution. The calculation was done using IBM SPSS Statistics 20 (see Appendix C for the result). The data was normal if the significant value of one sample Kolmogorov Smirnov test were higher than the level of confidence, that is, 0.05.

The second step in analysing the pre-test and post-test data was conducting the paired-sample t-test, in case the data met the assumption of normal distribution. Paired sample t-test was used to measure the difference of students' writing performance. Moreover, paired-sample t-test was used because only one group was involved on the intervention. The calculation was done using IBM SPSS Statistics 20, and presented in chapter four.

In case the difference was significant, effect size, thus, was calculated to measure the impact of the intervention to the treatment. Effect size used was r^2 coefficient (Coolidge, 2000). SPSS did not calculate effect size automatically. Therefore, effect size was calculated using the equation as follows.

Figure 3.1 r square equation (Coolidge, 2000)

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

where,

r^2 = effect size

t = obtained t value

df = degree of freedom

Likewise, the coefficient is interpreted as following table.

Table 3.5 r square Coefficient Interpretation (Coolidge, 2000)

Effect Size	Value
Small	.01
Medium	.09
Large	.25

3.6.3 Analysis of Student Texts

Analysis of student texts was used in order to support the result of hypothesis testing. Students' texts were taken during the teaching program, in the pre-test and post-test. Students' texts were first analysed using Hyland's (2004) scoring profile of recount text.

First, the text were analysed in terms of structure, which analysing the availability of orientation, sequence of events and re-orientation or evaluation (which is realised by system of theme). Second, the text were analysed in terms of content, which covers the availability of events, personal comments, participants (which further realised from the system of transitivity). Third, the text were analysed in terms of language usage, which covers the control of language use, spelling and grammar, and some mechanics/techniques of writing. The style and tone were also analysed, which is realised by the modality system.

To sum up, the students' texts were analysed in in terms of the structure, organisation, and purpose, and how well each element in the text performs its function to follow the suggestion from the genre theorists (Gerot & Wignell, 1995; Hyland, 2004; Knapp & Watkins; 2005; Emilia, 2010); to do with the textual,

ideational and interpersonal meta-functions (Eggins, 1994; Halliday, 1994; Gerot & Wignell, 1995; Emilia, 2011; 2014). Analysis of student texts can be seen in Appendix D.

3.6.4 Analysis of Interview

There are several steps used in analysing the data from interview, i.e. transcribing and/or reviewing data, and analysing all interview data (Seidman, 2006). The first step was transcribing the data. The data from the interview were transcribed to ease the researcher processing the data. The second step was categorizing, in which the data from the interview were categorized based on the responses toward the use of each type of scaffolding proposed. The final step was discussing the data to find the answer of the research question. The transcription of interview data is available on Appendix F.

3.7 Concluding Remark

This chapter has discussed the methodology used in this study. It covered research design, data collection, research procedure, and data analysis. Additionally, the data analysis results and its interpretation are discussed in the following chapter.