CHAPTER III

METHODOLOGY

This chapter highlights the research method which is used in this study. It includes research method, research design, population, sample and sampling technique, technique for collecting data, technique for analyzing data, and statistical hypothesis.

A. Research Design

Ary, et.al (2010) argue that experimental research is a study of the effect of the systematic manipulation of one variable on another. It is usually regarded as the research method to test the hypothesis started with a question about the relationship between two variables or more. It is in line with what Mackey and Gass (2005: 2) have highlighted that "quantitative research generally starts with a hypothesis and is followed by the quantification of data and some sort of numerical analysis is carried out". They also mention that researcher or experimenter cannot randomly select subjects for experimental treatment, then the experimenter must use already assembled groups such as classes. In this case, the research was called quasi-experimental pretest posttest design. In this current study, the researcher then took the intact six classes assigned as experimental group and control group.

Quantitative data was collected to ensure thorough cognizance of the impact of the IWB on the writings of EFL students in English First Kediri and to procure a profound perception of their attitude towards writing in English and the use of

technology in EFL classrooms. The treatment conditions with two levels (experimental and control) constituted the independent variable manipulated in the study. The experimental groups received instruction according to the procedures of IWB prewriting instruction and the control groups received regular prewriting instruction using computer unit. Then, the scores of the participants on prewriting regarding the development of ideas and topic-related vocabulary words in addition to the participants' attitude towards writing and the use of IWB writing instruction served as dependent variables.

B. Variables of the Study

As aforementioned, quasi-experimental research was selected since the study tried to reveal the effect of Interactive Whiteboard on the attitude and writings of EFL learners at EF Kediri. Hence, this current study involved three kinds of variables; interactive whiteboard, writing skill and students' attitude toward IWB.

The first variable is independent variable. Independent variable is the variable which the researcher expects to influence the other variable (Nunan, 1992). Meanwhile, the second variable is called as dependent variable that is the variable upon which the independent variable is acting (Nunan, 1992:25). Thus, the dependent variable in this study was the students' writing skill. Further, the third variable in this study was students' attitude toward the use of IWB. It was called as a moderator variable which is defined as the variable that may result or modify the interaction between an independent variable and other variables (Mackey &Gass, 2005: 103).

C. Population and Sampling Technique

1. Population

A population is a set of items or individuals each of which can be assigned values of one or more characteristics (Jobson, 1999: 12). Meanwhile, according to Ary et, al (2010:148) population is defined as all members of any well-defined class of people, events, or objects.

The population of this study was the students of EFL learners (Frontrunners) at English First Kediri. The setting of this study was at private language school, English First (EF) Kediri. The school is located at Jl. Letjend Haryono. No.27 Kediri. The native language of the participants was Bahasa Indonesia with English as a first foreign language. They are males and females, and their ages range between 15 to 20 years old.

2. Sampling Technique of the Study

Sampling technique is a step to select the sample. Since the researcher is not able to draw a random sample of students for a study, the researcher uses nonprobability sampling for selecting the members of the sample. The sampling technique in this study is cluster random sampling. It is the selection of groups or cluster, of objects rather than individuals (Ary et, al, 2010).

There are ten classes of Frontrunners classes to choose as three experimental groups and three control groups. All of those ten classes are having the same chance to be chosen as sample. The technique of taking the sample is by using lottery.

EFL Classes   **Sampling**

Available   **Technique Used**

EFL Classes Available
Frontrunner 1
Frontrunner 2
Frontrunner 3
Frontrunner 4
Frontrunner 5
Frontrunner 6
Frontrunner 7
Frontrunner 8
Frontrunner 9
Frontrunner 10
Frontrunner 11
Frontrunner 12

Cluster

Random

Sampling

(Using Lottery)

Control Group :

1. Frontrunner 1
2. Frontrunner 7
3. Frontrunner 11

Experimental Group :

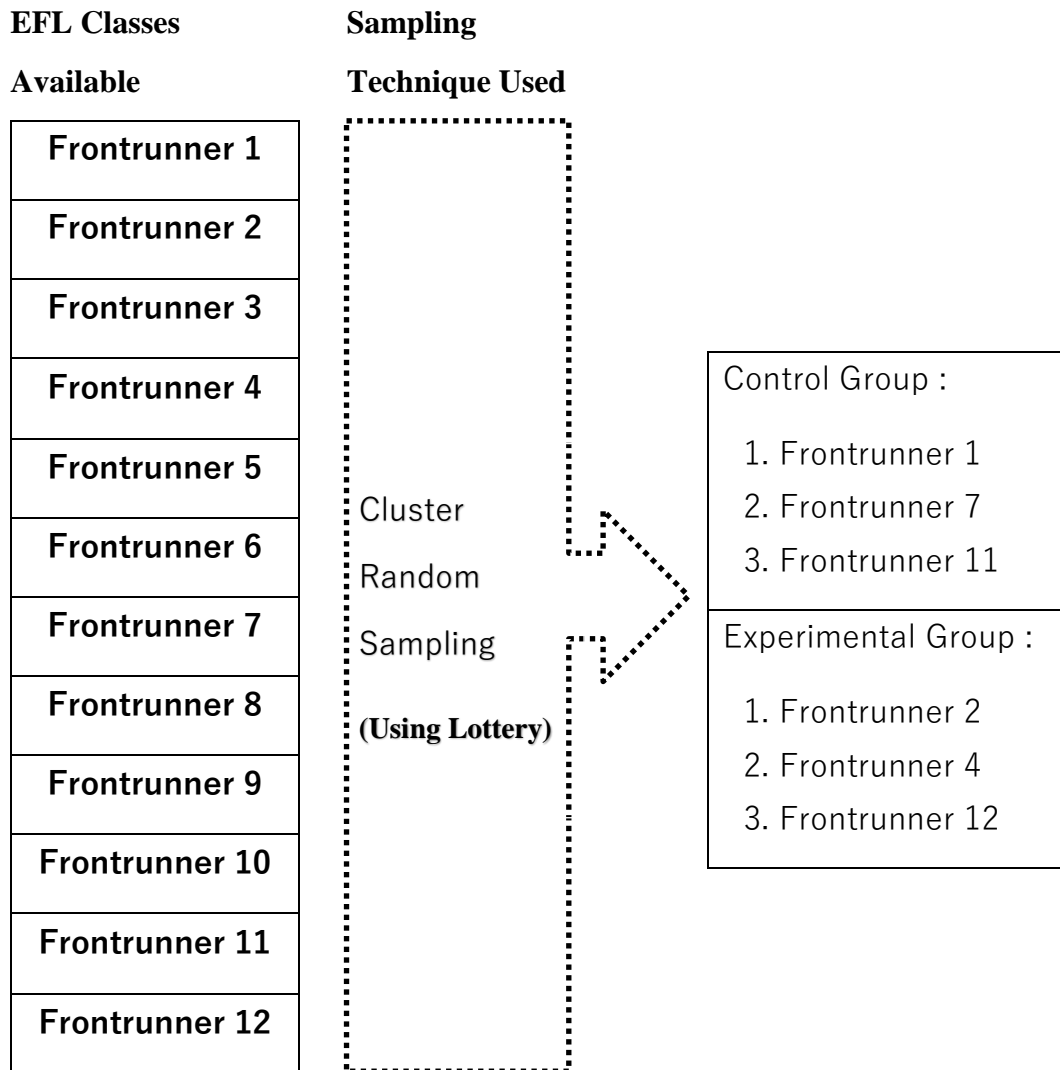1. Frontrunner 2
2. Frontrunner 4
3. Frontrunner 12

Figure Cluster Random Sampling in EFL Classes

The sample is a subset of the population and is chosen in such a way that the degree of uncertainty in the sample values are known (Jobson, 1999: 12). At English First Kediri there were twelve Frontrunner classes available. The researcher used Cluster Random Sampling to select the sample by using lottery. There were six classes to be chosen as the sample of the study. Three classes (Frontrunner 1, Frontrunner 7, Frontrunner 11) were in Control Group and three other chosen

classes (Frontrunner 2, Frontrunner 4, Frontrunner 12) were in Experimental Group. Each class consisted of around 10-18 students. The groups were students experiencing IWB and those who did not. Thus, the overall number of students who participated in this study was 134 participants, 69 participants enrolled in control classes and 65 ones enrolled in experimental classes.

D. Research Setting

The present study was carried out in six classrooms in English First Kediri in which the IWB treatment was carried out. It had only one Promethean ActivBoard installed in one of its classrooms and each IWB classroom was equipped with a projector, a computer with ActiveInspire software downloaded on it, and an IWB pen to select or write with on the IWB.

Also, each class had one computer unit and LCDs that can be installed in any classroom and connected to the teacher's laptop to conduct a lesson. It is significant to note that all computers had internet access through a wireless internet connection. Students' seats in the IWB classrooms were arranged in a way that permitted feasible movement of students to the IWB. All the classrooms in the school also had shutters that prevented any sunlight blurring of the students' vision during the IWB lessons.

E. Research Instrument

The instruments of the current study comprised three questionnaires and an essay rating scale (Jacobs et al, 1981) to assess the participants' essays.

1. Questionnaires

The researcher used a demographic questionnaire and three 5 Likert-scale questionnaires to examine the pre-writings and the attitudes of the participants before and after the treatment. To examine the validity of the questionnaires, the researcher gave drafts of the questionnaires to two teachers of academic writing in English who inspected the general flow, relevance of item, purpose, possible wording, and instruction of each questionnaire. The items of the questionnaire include the student's attitude towards writing in English, student attitude towards writing after regular instruction, student performance and attitude after IWB treatment, and student's attitude towards writing in English after using Interactive Whiteboard in writing instruction.

A pilot study was conducted with sixteen students at EF Kediri on March 2nd, 2019 in order to examine the questionnaires of the control group, and another pilot study was carried out with eighteen students in another class to check the questionnaires of the experimental group. The participants in both pilot studies were different than those in the main study. The aim of the pilot studies was to study the timing, structure, clarity, and comprehensibility of the questionnaires' items. As a result, the researcher removed some items that were found repetitive and simplified the wording of some other items.

To examine the reliability of the questionnaires, the researcher found out the internal consistency of the items of each questionnaire using the Statistical Package for Social Sciences (SPSS) by computing the Cronbach's Alpha which was (α = 0.81) for the attitude questionnaire before the treatment, (α = 0.78) for the

questionnaire on the attitude of the participants in the control group towards writing after the regular pre-writing instruction, and (α = 0.88) for the performance and attitude questionnaire after the IWB treatment.

a. Attitude questionnaire before the treatment

It collected quantitative data on the attitudes towards writing of the participants in both, the control and experimental groups. It was administered to participants before carrying out any pre-writing instruction. Participants responded to 15 items about their attitudes towards writing on a 5 Likert scale of 1 to 5, where 1 indicated Strongly disagree and 5 indicated Strongly agree (Appendix B).

b. Attitude questionnaire after regular pre-writing instruction

It was administered to participants in control classes after conducting conventional pre-writing instruction. The questionnaire comprised 15 items devised to collect quantitative data on the participants' attitude towards writing and based on a 5 Likert scale, where 1 indicated Strongly disagree and 5 indicated Strongly agree. The purpose of the questionnaire was to determine whether students in the non-treatment classes changed their attitudes towards writing after the regular writing instruction (Appendix C).

c. Post IWB performance and attitude questionnaire.

It included 66 items based on a 5 Likert scale, where 1 indicated Strongly disagree and 5 indicated Strongly agree and collected quantitative data about the students' performance and attitudes towards writing and the

use of IWB in pre-writing instruction (Appendix D). The questionnaire was administered after the IWB pre-writing instruction was carried out in experimental classes and it comprised of six parts: Part A (Student Performance with respect to IWB), part B (Student Attitude towards Writing with respect to IWB), part C (Student Attitude towards the Use of IWB in writing Instruction).

d. Students' performance

It asked students to respond to questions about the extent they found the IWB pre-writing instruction beneficial in developing their ideas and in using vocabulary words properly in their essays. The questionnaire consisted of 10 items: 10 items about IWB pre-writing instruction (seven items about idea development and three items about vocabulary).

e. Students' attitude towards writing

It was administered to participants in the experimental group after conducting the IWB pre-writing instruction. The questionnaire involved 15 items, and participants were asked to respond to 15 items about their attitude towards writing after the IWB treatment. This questionnaire aimed at examining whether the participants in the experimental classes changed their attitudes towards writing after the IWB pre-writing instruction was done.

f. Students' attitude towards the use of IWB in pre-writing instruction

It comprised nine items about the attitude of participants towards the use of IWB in pre-writing instruction. The participants in the experimental

group filled in this questionnaire after they received the IWB pre-writing instruction.

2. Essay Rating Scale

It is a measurement instrument consisting of five sections: Content, organization, vocabulary, language use, and mechanics (Appendix E). Two sections of this scale Content and Vocabulary were used in this study to rate the participants' essays. The participants' essays in the control and experimental groups were rated by two raters: the researcher and an independent rater, who both have experience in teaching EFL classes and essay correction. Both raters were not the teachers of the participants in this study. Also, the independent rater did not know any of the participants and had no interaction with them. Both raters rehearsed rating essays according to the essay rating scale by using essays written by students other than those involved in the study.

The rehearsal enabled both raters to practice the scoring procedure and get the hang of some items in the rating scale. Afterwards, the researcher and the independent rater chose three from the participants' essays randomly and scored them independently in line with two sections of the essay rating scale, content and vocabulary. Subsequently, the two raters deliberated their scores for content and vocabulary and agreed on a common understanding of the scoring criteria. To achieve inter-rater reliability, the independent rater rated 13 essays written by participants after receiving regular treatment, 14 essays written by participants after receiving IWB treatment. These essays form around 20% of the total number of essays of each treatment and were selected randomly by the researcher and given

to the independent rater without informing her about the type of treatment each essay was written after. The inter-rater reliability was computed by dividing the number of agreements by the total number of rating and was found to be highly reliable as displayed in Table 1. Teachers of the control and experimental groups looked at the essays to know how their students performed after carrying out the pre-writing instruction.

F. Materials

The private school, in this case English First Kediri used some materials to implement the present research study. The common material between the control and the experimental groups was the English Frontrunner textbook. Another material was the students' writing portfolios where students kept all their writings and essays before and after the treatment. However, teachers of the experimental classes required different materials to carry out the study than those of the control classes.

1. Frontrunner Textbook

The teachers of the control and experimental classes used the Frontrunner textbook, issued by Education First in Boston, the USA. The textbook comprised of three main parts: Imprints, Unity and Diversity, and Reaching out.

The first part, Imprints, included three themes: People: Life and Work, Wars and Revolutions, and Explorations and Excavations. The second part, Unity and Diversity, consisted of three themes: Youth: Problems and Expectations, Family Relations: Duties and Rights, and The Arts. The third part contained three themes: Health Issues, Media Issues, and Political Issues.

The researcher constructed the writing prompts of the essays on eight topics related to the three main parts of the textbook, specifically, to five themes in these parts. The first two writing prompts were related to the first theme in the first part: People: Life and Work. The third and fourth writing prompts were related to the second theme in the first part: Wars and Revolutions. The fifth writing prompt was related to the third theme in the first part: Explorations and Excavations.

The sixth writing prompt was related to the first theme in the second part: Youth: Problems and Expectations. The last two writing prompts were related to the first theme of the third part: Health Issues.

2. Writing Portfolios

To carry out this research study, the researcher used eight essays from the writing portfolio of the students in the control and experimental groups: Two essays before conducting any treatment and six essays after carrying out the conventional or IWB treatment. Quantitative data on the participants' writing abilities were collected from two essays written by the participants in the experimental and control groups before the teachers carried out any pre-writing treatment. The researcher, also, collected quantitative data from a total of six essays written by the participants after receiving the pre-writing instruction in both, the control and experimental classes. The target from this data collection was to compare the essay scores of the participants in the control and experimental groups before the treatment with those after the treatment to find out if there was a significant difference in the written performance of the participants receiving regular pre-writing instruction and those receiving IWB pre-writing instruction. All the

participants' essays in the control and experimental groups were rated according to an essay rating scale.

3. Experimental Class Materials

The researcher of the experimental classes utilized Promethean ActivBoards, computers with the ActivInspire software downloaded in them, fixed projectors, interactive whiteboard pens (one used by the teacher and another by students), and the IWB instructional activities in order to conduct the IWB pre-writing instruction. It is significant to note that the IWB pre-writing lessons were devised by the researcher and her colleague who is a professional IWB trainer.

All the IWB lessons were then discussed with the teachers of the experimental classes. It is, also, worth mentioning that an IWB is installed in only one class in this school, so a teacher who wants to use it has to ask her students to come to the IWB class. However, there were more than a portable LCD projector in each school, the thing which made it feasible to the teacher to take it with her to the class she needed to use it in.

4. Control Class Materials

The researcher of the control classes used white boards and white board pens in order to jot down lists of the ideas developed and the terms and vocabulary words discussed throughout the regular pre-writing instruction. The pre-writing lessons were prepared by the researcher and reviewed by an experienced teacher, and they included the same number of ideas and vocabulary words that IWB pre-writing lessons comprised. All the lessons were then discussed with the teachers of the control classes.

G. Data Collection and Analysis

1. Data Collection Procedure

The researcher collected data for the present study during three phases; the pre-treatment phase, the treatment phase, and the post-treatment phase.

In pre-treatment phase, first, the researcher obtained permission from the Director of Study at English First Kediri to conduct the current research study at the private English school after explaining the purpose of the study and assuring confidentiality to protect the identity of participants. Next, the researcher met with the four teachers of the assigned control and experimental classes, consulted with them about the purpose of the study and the procedure of the pre-writing instruction, and obtained their cooperation and voluntary consent: (a) to implement the pre-writing instruction (b) to issue the questionnaires (c) to ask their students to write essays on the writing prompts devised by the researcher (d) to allow the researcher to take these essays and return them after scoring them with an independent rater and. It is worth mentioning that the researcher held intermittent meetings with the teachers throughout the period during which the study was implemented in order to get feedback on every pre-writing activity and resolve any hindrance that teachers encountered. Afterwards, teachers of both, the control and experimental classes, administered the demographic questionnaire which allowed the researcher to specify the participants in the control and experimental classes. The teachers, then, issued the second questionnaire which inspected the participants' attitude towards writing before carrying out any treatment.

During the treatment phase, it consisted of the regular and experimental treatments. In both treatments, each pre-writing instruction comprised of a specific number of ideas and vocabulary words in each pre-writing instruction. The first pre-writing instruction consisted of 12 ideas and 24 vocabulary words that enabled students to write a descriptive essay. In the first writing prompt, students were asked to use seven of these ideas and 10 of the vocabulary words. The second pre-writing instruction comprised 28 ideas and 15 vocabulary words that aided them in writing a cause-effect essay. Students were asked to use 15 ideas and nine vocabulary words of the learned ones in the second writing prompt. The third pre-writing instruction equipped students with 30 ideas and 19 vocabulary words to write a problem-solution essay. The third writing prompt asked students to use 12 of these ideas and 10 of the vocabulary words. The fourth pre-writing instruction provided 12 ideas and 12 vocabulary words required in writing a contrast essay. In the fourth writing prompt, students were asked to use six ideas and eight vocabulary words. The fifth pre-writing instruction involved eight ideas and 12 vocabulary words that enabled students to write a cause essay. The fifth writing prompt asked students to use six of the eight ideas and eight of the 12 vocabulary words. The last pre-writing instruction empowered students with 16 ideas and 15 vocabulary words that assisted them in writing an argumentative essay. The sixth writing prompt asked students to use 10 of the 16 ideas and 10 of the 15 vocabulary words. However, the conveyance of each pre-writing instruction by teachers differed between the control and experimental classes.

In regular treatment, teachers of control classes along with their students developed ideas and discussed vocabulary words about each topic of the six writing prompts on which students were asked to write their essays. The pre-writing instruction was implemented under regular conditions which included oral discussion with spasmodic use of a white board to jot down and practice topic-related ideas and vocabulary words.

While in experimental classes, teachers of experimental classes implemented pre-writing instruction about each topic of the six writing prompts on which students were asked to write their essays. The pre-writing instruction comprised the use of IWB in the instructional procedure of each topic of three writing prompts and the use of PPT in the instructional procedure of each topic of the remaining three writing prompts.

a. IWB pre-writing instruction I

The first pre-writing instruction was on the first topic of writing prompt 1 based on a short story The Sniper in the student textbook. It comprised ten pages of an IWB flipchart that analyzed the character of the sniper in terms of traits and behavior. The researcher devised the IWB flipchart by using a variety of techniques, property browsers, action browsers, and tools such as Spotlight, Magic Ink, Fill, Drag to reveal, Rub and reveal, Next page, Restrictor, Container, and Hidden. Some of these were used to carry out instruction in terms of idea development. Spotlight was used to allow students to detect the distinctive feature of a sniper in the hidden picture. Magic Ink, Next page, and Hidden enabled students to grasp the historical

background of the civil war in which the sniper character played a crucial role. The Fill technique was used to provide feedback on students' answers with respect to the snipers' character traits and their supporting clues. The remaining tools and techniques like Drag to reveal, Restrictor, Rub and reveal and Container were used to conduct instruction pertaining to proper use of vocabulary words. In brief, the first pre-writing instruction aimed at enabling students to analyze the physical features and character of thesniper in a descriptive essay.

b. IWB pre-writing instruction II

The second IWB pre-writing instruction was on the fourth writing prompt related to a short story, The Chaser in the student textbook. It involved six pages of an IWB flipchart that provided students with ideas and key words needed to write an essay in which they have to draw a contrast between the two main characters, Alan and the old man. Revealer and Hidden were used in developing ideas on the differences between the two major figures in the story. The Fill and Container techniques were used to provide students with ample practice on vocabulary words required to describe each major character and contrast it with the other.

c. IWB pre-writing instruction III

The third IWB pre-writing instruction was on the fifth writing prompt. It included five pages of an IWB flipchart. Its purpose was to discuss ideas and vocabulary words pertaining to the causes of Anorexia. To attain such a purpose, the researcher employed the following techniques, tools, property

browsers, and action browsers such as Hidden, Container, Pen action, Magic Ink, Rub and reveal‖ and Revealer. Students brainstormed ideas concerning anorexia by using the Hidden action browser, then theywere exposed to the foremost factors that lead a person to be anorexic by using the Pen action, and they were asked to identify the elaborative ideas of each factor and to check answers by using the Magic Ink tool. Later, students were asked to recall key ideas concealed to be displayed by using the Revealer tool. Moreover, students practiced vocabulary words related to the topic anorexia by using the Container: Specific object in the property browser in which they were asked to select the correct word and insert it in the specified container. For further practice, a cloze text exercise was provided to ensure reinforcement of fore-mentioned vocabulary words in a topic-related context by using the Rub and reveal technique.

d. Post-treatment phase

During this phase, the researcher collected data not only from students but also from teachers. Regarding data collection from students, teachers provided their students with a writing prompt and asked them to write an essay on it after each pre-writing instruction. Teachers, then, collected the essays and gave them to the researcher who scored them with an independent rater according to a rating scale and returned them to the teachers. At the end of all the pre-writing instruction sessions and after the participants in the control and experimental classes wrote six essays on six different writing prompts, teachers of the control classes administered a

questionnaire that examined the participants' attitude towards writing after the regular treatment, while teachers of the experimental classes administered another questionnaire that investigated the participants' performance, attitude towards writing, and attitude towards the use of IWB in pre-writing instruction after the IWB treatment.

2. Data Analysis Procedure

Quantitative data from essays and questionnaires were analyzed using SPSS as a series of independent samples t-test were carried out. Before conducting each independent samples t-test, the researcher made sure that the data collected met the assumptions underlying the independent-samples t-test which are the following: (1) The data(scores) are independent of each other (that is, scores of one participant are not systematically related to scores of the other participants). This is commonly referred to as the assumption of independence. In the present study, this assumption is already met since each participant in the control group as well as in the experimental group has an individual score on his/her essay. (2) The dependent variable (scores) is normally distributed within each of the two sample groups (control and experimental). This is commonly referred to as the assumption of normality. Alpha levels (.01 and .001) are commonly used to evaluate the assumption of normality (Tabachnick and Fidell, 2007). Finally, (3) the variances of the dependent variable (scores) in the two groups are equal. This is commonly referred to as the assumption of homogeneity of variance (Sheskin,2003). After proving the three assumptions, an independent t-test was carried out to examine if there was a significant difference in the mean value between the pre-test scores as

regards the development of ideas of the participants in the control group and those of the participants in the experimental group. Another independent t-test was also conducted to examine if there was a significant difference in the mean value between the post-test scores regarding development of ideas of the participants in the control group and those of the participants in the experimental group. Moreover, paired-samples t-tests were conducted to determine if IWB pre-writing instruction improved students' development of ideas in writing by examining the difference in essay scores pertaining to content between pretest and posttest means of the control group and those of the experimental group.

With respect to data analysis for the research questions, preliminary analysis was performed to prove the assumptions of the independent t-test. Accordingly, an independent t-test was carried out to determine if there was a significant difference in the mean value between the pre-test scores relating to the proper use of vocabulary words of the participants in the control group and those of the participants in the experimental group. Another independent t-test was also conducted to examine if there was a significant difference in the mean value between the post-test scores concerning the proper use of vocabulary words of the participants in the control group and those of the participants in the experimental group. Besides, paired-samples t-tests were conducted to determine if IWB pre-writing instruction improved students' proper use of topic-related vocabulary words in writing by examining the difference in essay scores concerning vocabulary between pretest and posttest means of the control group and those of the

experimental group. Moreover, descriptive statistics including means, standard deviations, minimum and maximum scores were computed.

Pre-treatment and post-treatment quantitative data were also analyzed using paired-samples t-tests for means of the control and experimental groups to find out if the use of IWB boosted participants' attitude towards writing. They were analyzed quantitatively by computing descriptive statistics such as frequencies, percentages, means, and standard deviations to determine the attitude of the participants in experimental group towards the IWB treatment.