CHAPTER III

RESEARCH METHOD

In this chapter, the researcher describes the research method that used in this research. It consisted of research design, variable of research, population and sample, method of data collection, research instrument, method of data analysis, validity, and reliability testing.

A. Research Design

This research was conducted through quantitative research. According to Muijs (2004: 1-2), quantitative research was the study of numbers. It Collected numeric data by using a mathematical method to explain the phenomenon (especially in statistics). From other definitions, according to Creswell JW (2014:4), quantitative research was a method for testing an objective hypothesis by evaluating the correlation between variables then the variables could be calculated with the instrument, and numbered data could be checked by the statistical process.

This research belongs to correlation design. According to Lodico et al (2006: 14), correlational research is a quantitative strategy for establishing the correlations between two or more variables. Another opinion from Sukardi (2003), correlation research is using correlation coefficients, determine the degree to which variations in one factor lead to variations in one or more other factors.

Correlational research can be used to determine the relationship between variables or to make predictions based on such relations. Here, the researcher wanted to know whether there is any positive correlation between student's grammar mastery and students' competence in writing descriptive text by interpreting the data.

Correlation design is a type of quantitative study in which researchers calculate the relationship between two or more variables using the statistical method. This number showed whether the two variables are related or whether one can predict the other. In this research, the researcher uses the correlation between two variables.

As a result, the appropriate research design is employed to determine whether students' grammatical mastery correlates with their competence in writing the descriptive text at the tenth-grade SMKN 1 Bandung in academic year 2020/2021.

B. Variables of Research

The researcher examined that the relationship between the predicted variable (X) and the criterion variable (Y). These were the two variables in students' grammar mastery (X) their competence in writing descriptive text (Y).

C. **Population and Sample**

1. Population

According to Lodico et al (2006: 140), a population is a broader a group of people concerned with whom the researcher wishes to make statements, Sugiyono (2015: 117) states that the population is a field of generalization that is made from the subjects with details and characteristics which the researcher determined must be investigated. It means that population refers to a large group. In this research, the population is all students who come from the first grade Mechanical Engineering (TKRO) about 190 students' of SMKN 1 Bandung in academic year 2020/2021.

2. Sample

The researcher in this study gathered the data from part of the population involving in this research. According to Lodico et al (2006: 143), The sample is a small group of people taken from the larger population that is representative of the total. Data was obtained from students in the general population and was then used to create a sample. Sugiyono (2015: 118) stated that sample is a subset of the population's size and characteristics. In the other words, the sample was selected from a representative part of the population to represent the study. The data was taken from students among the population, which was considered as a sample. The researcher conducted a sample by using a purposive sampling

method. According to Cohen et al., (2007:115) As the name implies, the sample was chosen for a specific purpose and met their requirements. The researcher used purposive sampling because the researcher could only use one class of four classes in X-TKRO. So, the researcher took a class of TKRO 4 as the sample because it was suggested by an English teacher and the researcher believed that they gave sufficient information. The number of the sample for this research would automatically be less than the population because it is from 35 students from class X TKRO-4 as the sample, which included students from five different first-grade classes. It consisted of 35 males.

D. Method of Data Collection

In conducting this research, the researcher used tests to get scores of students' grammar mastery and students' competence in writing descriptive text. The grammar test consists of 20 items which was be served in multiple-choice forms. After the students finished the grammar test, the students continue to do a writing test. The researcher permitted the students to complete the test in seventy minutes.

By this method the researcher obtained a value of the data or the results of student learning outcomes, that data was processed to determine the relationship of students' grammar mastery with their competence in writing

descriptive text. This data gathering took place in SMKN 1 Bandung especially for the student of first grade.

The test consisted of two sets namely grammar test and writing descriptive test which is held at the same time. These tests contained 20 multiple choices items for grammar tests and 10 sentences of writing descriptive text. The students had 50 minutes to complete the exam, which meant that each test (grammar and writing test) for 25 minutes. It was given to 35 students of TKRO 4 class at first-grade students of SMKN 1 Bandung who as the sample of this research.

E. Research Instrument

After the method of data collection was designed, the next step was to compose the instrument. The research instrument was very important to get the data. the research instrument was a method to measure the natural and social phenomena observed (Sugiono, 2015: 148). It was the goal to get data and to test the theory that was used to measure students' grammar mastery and their competence in writing descriptive text.

A test was used as grammar and writing instrument in this research. According to Ary et al (2010: 201), the test was a series of stimuli given to an individual to get a response from a set numeric score. This score was based on a sample from individual actions. It was a measure of how large the subject had the trait being tested. In this situation, the researcher used two kinds of

tests to get data and information, they are grammar and writing tests. The form of grammar test was objective and the writing test was subjective.

In this research, the grammar test contained twenty multiple choices. The material of the grammar test was from language features in descriptive text such as the simple present, noun (plural and singular noun), adjective, and action verb. To give a score from the answer, each number had given five points. So, each of the correct answers got five points and the wrong answers got zero points. The time location for this test was around twenty-five minutes.

For the writing test, the researcher required the students to describe a good writing construction. The writing should consist of 10 sentences. The researcher gave some themes of descriptive text and the students had to choose one theme of descriptive text. To give the score for the answer, there is an assessment aspect of writing descriptive text. They are *content*, *organization* (identification, description), *vocabulary, grammatical features* (simple present, noun (plural and singular noun), adjective, action verb), *mechanics*. Every aspect of them has score 5 points. And every score 1-5 has a criterion, the explanation of score (1) very poor (2) poor (3) average (4) good (5) excellent. The students have to finish their work in 25 minutes.

Table 3.1 Assessment Aspects of Writing Descriptive Text

Aspect	Score	Performance Description
Content	5	Main ideas stated clearly and accurately, change of opinion very clear

(C)	4	Main ideas stated fairly clearly and accurately, change of opinion relatively clear
	3	Main ideas somewhat unclear and inaccurate, change of opinion somewhat weak
	2	Main ideas not clear or accurate, change of opinion weak
	1	Main ideas, not all clear or accurate, change of opinion very weak
Organization (O)	5	Well organized and perfectly coherent
	4	Fairly well organized and generally coherent
	3	Loosely organized but main ideas clear, logical but incomplete sequencing
	2	Ideas disconnected lacks logical sequencing
	1	No organization, incoherent
Vocabulary (V)	5	Very effective choice of words and use of idioms and word forms
	4	Effective choice of words and use of idioms and word forms
	3	Adequate choice of words but some misuse of vocabulary, idioms, and word forms
	2	Limited range, confusing use of words, idioms, and forms
	1	Very limited range, very poor knowledge of words, idioms, and word forms
Grammar (G)	5	No error, full control of the complex structure
	4	Almost no errors, good control of the structure
	3	Some errors, fair control of the structure
	2	Many errors, poor control of the structure
	1	Dominated by errors, no control of the structure
Mechanics (M)	5	Mastery of spelling and punctuation
	4	Few errors in spelling and punctuation
	3	Fair number of spelling and punctuation errors
	2	Frequent errors in spelling and punctuation
	1	No control over spelling and punctuation

$$\text{Score} = \frac{The\ total\ number\ gotten}{The\ maximal\ score} \times 100$$

Adapted from Brown (2004: 245-246)

Cohen (1994: 328-329)

By using instrument the researcher obtained a value of the data or the results of students competence, that these data were processed to determine the relationship of grammar mastery to the competence of writing descriptive text in class TKRO 4 class at first-grade students of SMKN 1 Bandung who as the sample of this research.

F. Try-Out of The Instrument

After the test had been built as a research instrument, the next step was the try-out instrument. The aim of the try-out was to determine the test items' validity and reliability. The test's tryout was held on 21st May 2021 and it has done again on 28th May 2021. It's held on twice because nowadays is pandemic. A class is divided to be 2 groups. They are group A (21st May 2021) and B (28th May 2021). Each group is only 16-18 students in a class. It was given to several students who were registered in X TKRO 3. There are 31 students from groups A and B who were taken as the subjects of the tryout.

This try-out was conducted to take grammar mastery and writing descriptive text tests. The time allotted was approximately 50 minutes. The test was conducted two times, each test was conducted in twenty-five minutes. In scoring the try-out of grammar test, the researcher gave the score for the answer, each number had the same score i.e. 5 points. So, each of the correct answers got five points and the wrong answers got zero points. For the writing test, the researcher gave the score for the answer, there is an assessment aspect

of writing descriptive text. They are *content*, *organization*, *vocabulary,* *grammatical features*, *mechanics*. Every aspect of them has score 5 points. And every score 1-5 has a criterion, the explanation of score (1) very poor (2) poor (3) average (4) good (5) excellent. The following is the table of the tryout data:

Table 3.2 Tryout Data

No	Students	Grammar test	Writing test
1	Student 1	60	80
2	Student 2	60	80
3	Student 3	60	80
4	Student 4	25	72
5	Student 5	50	72
6	Student 6	30	60
7	Student 7	30	60
8	Student 8	30	56
9	Student 9	35	56
10	Student 10	35	60
11	Student 11	30	52
12	Student 12	40	76
13	Student 13	65	84
14	Student 14	45	72
15	Student 15	30	64
16	Student 16	40	52
17	Student 17	65	84
18	Student 18	70	96
19	Student 19	70	64
20	Student 20	35	56

21	Student 21	75	64
22	Student 22	35	56
23	Student 23	25	60
24	Student 24	45	68
25	Student 25	35	48
26	Student 26	70	80
27	Student 27	60	68
28	Student 28	70	84
29	Student 29	70	80
30	Student 30	30	64
31	Student 31	80	96

G. Validity and Reliability Testing

Validity and reliability are critical principles in assessment. When creating a test, the validity and reliability of the exam are two important elements to consider. The most fundamental challenge in modern testing thought is the relationship between these two concepts and test form.

1. Validity Testing

Ary et al (2010: 225) states "validity is the degree to which a device accurately measured what it claimed to measure". The focus of validity testing based on the interpretation and meaning of the scores produced from the instrument, rather than the instrument itself. Besides, Lodico et al 2006: 87-88) validity means that the device calculates precisely what it claims to

measure. To put it another way, validity refers to the instrument's accuracy. It can be concluded that validity was a useful instrument that shows the degree of truth.

These are four types of validity; a) content validity, b) construct validity, c) criterion validity, d) face validity. The researcher assessed the test from both content and construct validity to determine whether it had excellent validity in this research.

a) Content validity

Content validity is a type of validity that is based on a thorough examination of the language being assessed as well as the test itself. If the contents of a test reflect a representative sample of the language ability, structure, etc. According to Sugiyono (2015: 182), content validity testing for instruments in the form of tests can be done by comparing the contents of the instrument to the subject matter that has been taught. The content validity in this study applied to the 2013 curriculum that the school has implemented.

According to the fundamental competence in the Curriculum 2013 syllabus, first-grade students at Vocational High School were taught about writing descriptive text. Moreover, according to basic competence, the students must be able to master descriptive text about generic structure, the purpose of descriptive text, and language features in descriptive text from the context. The test's instrument can be deemed to have content validity because it serves the same aim as the

core competence in the Curriculum of 2013, which is to assess students' ability to write descriptive texts with proper structures. The test specification could be seen in the appendix.

Besides writing test, this research had also grammar test. The purpose of this research was to measure students' grammar mastery and writing descriptive text. In this test, the researcher provided the multiple choice for grammar test and Essay for writing test.

b)   Construct validity

When it can be proven that a test assesses exactly the ability that it is designed to evaluate, it is said to have construct validity. According to Heaton (1975: 161), construct validity is a theory of language behavior and learning may measure those particular characteristics. Besides Brown (2004: 25), construct validity is a theory, hypothesis, or model which describe observable events or interactions in our universe. To summarize, construct validity refers to the fundamental skills hypothesized in language learning theory.

Based on the theory of Brown (2004) and Heaton (1990), the researcher used two tests to get data. The first was the grammar test, according to Heaton (1990:34), there were ways in testing grammar such as multiple-choice item, completion item, rearrangement item, error recognition item. Besides Hughes (1989: 143) the use of multiple-choice items to test grammar is encouraged in language testing handbooks, often to the exclusion of any other form. From the

statements above we can find a theory stating multiple choice is effectively used to test grammar.

The second was the writing test, according to Brown (2004: 246), the five items of writing aspects were content, organization, vocabulary, syntax, mechanics. Harris (1969: 68) states that "the writing process has been studied in a variety of ways, most teachers would likely agree on at least five general components: content, form, grammar, style, and mechanics." From the statements above, those 5 aspects should be used as the criteria for good writing. In this research, the writing test also used the 5 criteria above as the aspects of good writing.

The researcher used content validity and construct validity to determine test items for this research. To know the validity of grammar and writing tests, the researcher was doing the try-out on thirty-one subjects of research. To know validity in each test item which each test item was correlated with the total score of the test item. If the result of the r-test is higher than the r table. This item can be considered valid. The researcher used Pearson Product Moment (SPSS for Windows edition 24.0). The result of validity testing was shown in the table below:

Table 3.3 The Validity Result of Grammar Test in Try Out

R.Value: Variabel X		
X1	: Constant	

X2	: 0,592 > 0,3550	= Valid
X3	: 0,103 < 0,3550	= Invalid
X4	: 0,501 > 0,3550	= Valid
X5	: 0,298 < 0,3550	= Invalid
X6	: 0,473 > 0,3550	= Valid
X7	: 0,349 < 0,3550	= Invalid
X8	: CONSTANT	
X9	: 0,193 < 0,3550	= Invalid
X10	: 0,663 > 0,3550	= Valid
X11	: 0,176 < 0,3550	= Invalid
X12	: 0,493 > 0,3550	= Valid
X13	: 0,403 > 0,3550	= Valid
X14	: 0,710 > 0,3550	= Valid
X15	: 0,818 > 0,3550	= Valid
X16	: 0,692 > 0,3550	= Valid
X17	: 0,263 < 0,3550	= Invalid
X18	: 0,618 > 0,3550	= Valid

X19	: -0,083 < 0,3550	= Invalid
X20	: 0,281 < 0,3550	= Invalid

From the validity results table of the grammar test above, 10 grammar test items were not valid (numbers 2,4,6,10,12,13,14,15,16, and 18) and two constant test items (numbers 1 and 8) and thus were not used as the research instrument. So, the researcher needed to revise and change again the test item for the grammar test.

The table below involved the validity result of the writing test which is based on the assessment aspect of writing descriptive text. They are content, organization, vocabulary, grammatical features, mechanics. Every aspect of them has score 5 points. And every score 1-5 has a criterion, the explanation of score (1) very poor (2) poor (3) average (4) good (5) excellent.

Table 3.4 The validity Result of Writing Test in Try Out

R. Value: Variabel Y		
Y1	: 0,756 > 0,3550	= Valid
Y2	: 0,780 > 0,3550	= Valid
Y3	: 0,419 > 0,3550	= Valid
Y4	: 0,519 > 0,3550	= Valid
Y5	: 0,799 > 0,3550	= Valid

The table of validity results of the writing test above for 31 students with the criterion of assessment feature of writing descriptive text showed that they were all valid and could be utilized as a research instrument.

2. Reliability Testing

The consistency of the test's judgment and the outcome is referred to as reliability. According to Brown (2004: 20), the reliable test was a test that can be repeated and reliable. If the same test was given by the same students or a group of students at two separate times, the result would be identical. The other definition, Cohen (2007: 146) stated that reliability in quantitative research was consistency and replication across time, instrument, and a group of the respondent. In other words, reliability was consistent in the assessment of the procedure.

The test items were said the reliable (feasible) if Cronbach's alpha > 0,60 and said to be unreliable if it is smaller.

Cronbach's Alpha value range

0,91 - 1,00   = Excellent

0,81 - 0,90   = Good

0,71 - 0,80   = Good and Acceptable

0,61 - 0,70   = Acceptable

0,01 – 0,60   = Non Acceptable

Cronbach's Alpha (measured using SPSS for Windows edition 24.0) is a reliability measure in which the score of each item is correlated with the total score of the items. In the try-out, the reliability coefficient of the grammar test is 0,746.

Table 3.5 The Reliability Result of Grammar Test in Try Out

Reliability Statistics

Cronbach's Alpha	N of Items
.746	20

Then, the reliability of writing descriptive text test is 0.674 from which it can be said that the test has a very high reliability

Table 3.6 The Reliability Result of Writing Test in Try Out

VARIABLE Y

Reliability Statistics

Cronbach's Alpha	N of Items
.674	5

From the result of reliability analysis, all values derived from the x and y variables' results produce Cronbach's alpha values > 0,60. So it is possible to infer that all instruments in this study are reliable.

H. Method of Data Analysis

The goal of this research was to determine the relationship between students' grammar mastery and their ability to write descriptive text. The statistical was used to analyze the data from this study. The statistic technique for determines the relation between pairs of scores is known as the correlative procedure (Arikunto, 2010:143).

Before calculating the correlation, The researcher measured normality testing. The normality test is used to determine whether or not a variable is normal. The data is said to be normal if it has a regular distribution. The primary reason for undertaking normality testing in research was that the researcher knew the population or data being studied was distributed normally. The *One-Sample Kolmogorov-Smirnov* test can be used to determine if the data are normally distributed, with the condition that Asymp. Sig > 0.05 suggesting that the data are normally distributed.

The researcher used correlational research and calculated the data by using Pearson Product Moment Correlation to know the correlation between two variables. The data was from two variables that were exposed in the quantitative score and the data was an interval scale, so the researcher used it. The variable of this research was grammar mastery and writing descriptive text. The nature of correlation research was the association which was independent variables. However, to simplify data calculation, the researcher used SPSS 24,0 in processing data to get the correlation between two variables. Following the table to interpret product-moment scales:

Table 3.7 Interpretation of Product-Moment Scales

Correlation value (r)	Interpretation
0,000-0,200	Very low correlation
0,200-0,400	Low
0,400-0,600	Moderate
0,600-0,800	Enough
0,800-1,000	High correlation

Positive or negative numbers can result from correlation. If the coefficient correlations are close to one. It means the relationship between the two variables is stronger and correlation number is close to 0, it indicates a weaker relationship between the two variables.