

CHAPTER THREE

RESEARCH METHOD

3.1 Research Methods

This research employed a quasi-experimental approach, a common method particularly useful when it's challenging to randomly assign participants to different groups. Specifically, the study utilized a static-group pretest–post-test design. This setup involves at least two groups: an experimental group that receives the intervention, and one or more control or comparison groups that do not.

The process began with both groups taking a pretest to measure their baseline status on relevant factors. Following this, the intervention or treatment was applied to the experimental group. Afterward, a post-test was administered to both groups to evaluate any changes resulting from the treatment.

As Fraenkel and colleagues (2012, p. 270) explain, the static-group pretest–post-test design involves assessing the groups both before and after the treatment to determine its impact. Similarly, Creswell (2012, p. 294) notes that experimental designs represent a traditional method in quantitative research, emphasizing the measurement of variables and the comparison of results between groups.

Group	Measurement	Independent Variable	Measurement II
Controlled Group	Pre Test	Discord App	Post Test
Experimental Group	Pre Test	Conventional Method	Post Test

Tabel 3.1 Design Of the Study

3.2 Population and Sample

3.2.1 Population

The population in research refers to all individuals who participate in or are relevant to the study (Arikunto, 2010, p.130). In this study, data was collected from all members of the research subject. The population for this research consisted of 144 tenth-grade students from SMK AL-Ikhlas in the academic There were a total of 8 classes of XII grade at the school

3.2.2 Sample

A sample is a subset that represents the larger population under investigation (Arikunto, 2010, p.131). This study employed purposive sampling, a method often used in quasi-experimental research. The sample comprised two classes, each with 36 students. Specifically, class XI 2 was designated as the experimental class, while class XI 1 served as the control class.

3.3 Instrument of Research

In research, instruments are crucial for gathering necessary data from samples. Fundamentally, an instrument is any tool employed to collect, measure, and analyze information relevant to a study. These can range from questionnaires and surveys to interviews, all designed to extract specific data. In this particular study, both a pre-test and a post-test were utilized.

Before the intervention, students in both the experimental and control groups took a pre-test. This initial assessment gauged their baseline proficiency in writing procedure texts. Following the pre-test, the experimental group received instruction via Discord, while the control group continued with conventional classroom lessons without Discord integration. At the conclusion of the study period, all participants completed a post-test to measure their improvement in writing.

The core objective was to compare the performance of both groups and determine if Discord significantly impacted their ability to write clear procedure texts. For this research, students were asked with creating a procedural text, with an

expected length of up to 150 words. This task was administered as both a pre-test and a post-test to both the experimental group (Discord-based learning) and the control group (traditional learning).

The aim was to observe how Discord as a teaching tool might influence students' capacity to develop effective procedural texts, especially within an English for Specific Purposes (ESP) context. Student texts were evaluated using the Arthur Hughes grading system, which assesses content, organization, grammar, vocabulary, and mechanics to ensure a comprehensive evaluation.

3.4 The procedures of Data collection

1. Pre-test

Before the research began, students were divided into two distinct groups: the Control Group and the Experimental Group. This division was essential for comparing the outcomes of the instructional intervention. To establish a fair and accurate baseline, both groups were required to take a pre-test. The purpose of this pre-test was to assess the students' initial understanding and knowledge of procedure texts before any teaching treatment or instructional changes were implemented. By conducting this test prior to the intervention, the researcher could identify the level of proficiency each student had in recognizing the structure, language features, and overall comprehension of procedure texts. This baseline data served as a crucial reference point for evaluating any progress or changes that occurred after the intervention. As emphasized by Muijs (2004, p.18), pre-tests play a fundamental role in experimental research as they help ensure that any differences in post-test scores are attributable to the intervention, not prior knowledge differences.

2. Post-test

Following the completion of the treatment, a post-test was administered by the researcher to both the Experimental Group and the Control Group. This assessment served as a vital component of the research design, specifically intended to gauge the effectiveness of the instructional

intervention implemented with the Experimental Group. The goal of this evaluation was to quantify any improvements or changes in students' understanding of procedure texts that emerged after the intervention. By comparing these post-test results with their initial pre-test scores, the researcher could definitively determine whether the treatment yielded a significant impact on student learning outcomes. The consistent application of the same test to both groups also facilitated a fair comparison, aiding in isolating the specific influence of the experimental treatment. As Muijs (2004, p.18) clarifies, post-tests are typically employed in experimental research after an intervention to assess the resulting outcomes and draw robust conclusions about the instructional strategy's effectiveness.

3.5 The Data Analysis

In analysing the students' writing pre-test and post-test, the score was calculated and analysed the score by using Arthur Hughes rubric as describe in table 3.2 (Hughes, 2003):

Component	Score Range	Descriptors
Content	9-10	Thorough, complete, and accurate. Clearly addresses the topic.
	7-8	Mostly clear and accurate, minor omissions.
	5-6	Basic coverage, some gaps or unclear points.
	3-4	Limited understanding,

		missing key elements.
	1-2	Very limited, lacks clarity or relevance.
Organization	9-10	Clear, logical, and well-structured. Easy to follow.
	7-8	Mostly logical, some structure issues.
	5-6	Basic structure, but often confusing.
	3-4	Disorganized, difficult to follow.
	1-2	No clear structure, confusing.
Vocabulary	9-10	Wide range, precise, and appropriate.
	7-8	Adequate range, mostly accurate.
	5-6	Basic vocabulary, sometimes unclear.
	3-4	Limited range, often unclear.
	1-2	Very limited, unclear, often incorrect.

Language Use	9-10	Accurate, varied sentences, appropriate tone.
	7-8	Generally accurate, some minor errors.
	5-6	Basic control, frequent errors.
	3-4	Major errors, hard to understand.
	1-2	Consistent errors, very difficult to follow.
Mechanics	9-10	Few or no errors, clear writing.
	7-8	Minor errors, mostly clear.
	5-6	Some errors, sometimes unclear.
	3-4	Frequent errors, significantly affects readability.
	1-2	Many errors, hard to understand.

Tabel 3.2 Rubric for Assessing Student Writing

The pre-test and post-test data underwent analysis using a combination of parametric and non-parametric statistical methods. A preliminary Kolmogorov-Smirnov test indicated that the data did not follow a normal distribution, precluding the exclusive use of parametric tests. Consequently, the Wilcoxon Signed-Rank Test, a non-parametric alternative, was applied to assess within-group differences

between pre-test and post-test scores. This test is appropriate for related samples with non-normal distributions. An independent samples t-test was subsequently conducted to compare post-test mean scores between the experimental and control groups, assuming equal variances. These combined analyses aimed to determine if the integration of Discord features significantly impacted students' proficiency in writing procedure texts.

In this research there a hypothesis that were tested as follow:

$$t_0 = \frac{m_x - m_y}{SE_{M_x - m_y}}$$

Explanation:

t_0 = the value of t count

m_x = mean variable of experimental class

m_y = mean variable of control class

SEM_x = the number of experimental classes

SEM_y = the number of control classes

The Procedure used as follow:

1. Determining Mean Variable X:

$$M_x = \frac{\sum x}{nx}$$

2. Determining Mean Variable Y:

$$M_y = \frac{\sum y}{ny}$$

3. Determining Deviation Standard of Score of Variable X:

$$SD_y = \sqrt{\frac{\sum x^2}{nx}}$$

4. Determining Deviation Standard of Score of Variable Y:

$$SDy = \sqrt{\frac{\sum y^2}{ny}}$$

5. Determining Standard Error of Mean Variable X:

$$SEMx = \frac{SDx}{\sqrt{nx - 1}}$$

6. Determining Standard Error of Mean Variable Y:

$$SEMx = \frac{SDy}{\sqrt{ny - 1}}$$

7. Determining Standard Error of difference of Mean Variable X and Mean Variable Y

$$SEMx - My = \sqrt{SEMx^2 + SEMy^2}$$

8. Determining t_0 with formula:

$$t_0 = \frac{Mx - My}{SEMx - My}$$

9. Determining degree of freedom:

$$df = (nx + ny) - 2$$

In order to measure whether the effect size of technique was strong, Cohens' theory will be adopted by researcher as follows:

$$d = \frac{Mx - My}{Spooled}$$

Explanation:

d: Cohens from t-test

Mx: Mean of Experimental Class

My: Mean of Control Class

S: Standard Deviation

In this research there a hypothesis that were tested as follow:

1. H0: There is no significant difference in Procedure Writing skill between the students those who are taught using Discord features and those who are not using Discord feature.
2. Ha: There is significant difference in Procedure Writing skill between the students those who are taught using Discord features and those who are not using Discord feature.

With the rules decision as follows:

- a. If $t_0 < t\text{-table}$ means there is no effect and H0 is accepted, Ha is rejected.
- b. If $t_0 \geq t\text{-table}$ means there is effect and H0 is rejected, Ha is accepted.

Pooled Standard Deviation formula:

$$Spooled = \frac{Sx + Sy}{2}$$

Explanation:

Sx = Standard Deviation of Experimental Class

Sy = Standard Deviation of Control Class

The d score was utilized to establish the effect size, with its interpretation guided by Cohen's d standards. This calculation subsequently elucidated the percentage of the effect observed in improving students' ability to write descriptive texts through the implementation of Discord's features. The interpretation framework for Cohen's d is as follows:

Cohen's Standard	Effect Size	Percentage
Large	2.0	97.7
	1.9	97.1
	1.8	96.4
	1.7	95.5
	1.6	94.5
	1.5	93.3
	1.4	91.9
	1.3	90
	1.2	88
	1.1	86
	1.0	84
	0.9	82
	0.8	79
Medium	0.7	76
	0.6	73
	0.5	69
Small	0.4	66
	0.3	62
	0.2	58
	0.1	54
	0.0	50