CHAPTER III

RESEARCH METHODOLOGY

This chapter describes in detail the method applied in the research, which includes the research approach and design, population and sample, data collection methods, research tools, and how to analyze the data. This explanation of the methodology is very important to emphasize the validity and consistency of the research process that has been carried out.

A. Method of Research

The study titled "Implementing Digital Storytelling Games for Writing Skills Development in Grade 8th at MTs Al-Azhar Center OKU" employs a pre-experimental design to assess the impact of digital storytelling games on the writing abilities of seventh-grade students. Pre-experimental designs are characterized by their simplicity and focus on a single group, allowing researchers to observe the effects of an intervention without the need for a control group (Creswell & Creswell, 2022). In this study, the researcher will implement digital storytelling games with an experimental group of students and measure their writing skills before and after the intervention.

In a pre-experimental design, the researcher typically collects data using pre-tests and post-tests to evaluate changes in students' writing abilities. According to Fraenkel, Wallen, and Hyun (2019), this method is particularly useful in educational research when it is not feasible to randomly assign participants to different groups. By comparing the pre-test scores, which reflect

students' writing skills prior to the intervention, with the post-test scores obtained after the implementation of digital storytelling games, the researcher can determine the effectiveness of the intervention. This allows for a straightforward analysis of the impact of digital storytelling on writing skills, providing valuable insights into the potential benefits of integrating technology into the classroom.

Experimental Group:

$$\mathbf{O_1\ X\ O_2}$$

Explanation of Notation

1. **O_1**: Pretest. Both groups are given a pretest to assess their baseline writing skills. This ensures initial equivalence between the groups.
2. **X**: Intervention (Digital Storytelling Game). The experimental group participates in learning activities that utilize digital storytelling games.
3. **O_2**: Posttest. Both groups are given a posttest to measure changes in their writing skills after the intervention period.

B. Operational Definition

1. Digital Storytelling Game

Digital storytelling games represent an innovative learning tool that merges narrative experiences with digital features like audio, visuals, and animation. In educational settings, this format captivates learners by offering engaging, interactive content. Students are motivated not just to follow the storyline but also to explore ideas in imaginative ways and strengthen their reasoning abilities. These games are purposefully crafted

to enhance literacy, especially in writing and reading, through immersive storytelling, interactive scenes, and opportunities for learners to build original narratives. This method transforms traditional learning into a dynamic, enjoyable process that encourages active participation and deeper understanding in the classroom.

2. Writing Skills

Writing is the process of putting thoughts into a form that others can understand. This skill requires not only creativity, but also an understanding of language structure and logical flow. In the learning process, writing provides students with an opportunity to express themselves and develop systematic thinking. I view this skill as one of the foundational pillars of education. Beyond supporting academic achievement, writing also helps sharpen critical thinking and sensitivity to various issues. Therefore, cultivating the habit of writing from an early age can yield significant benefits in the future.

C. Research Variable

1. Independent Variables

Digital Storytelling Game, this variable pertains to the integration of digital storytelling-based games in the educational process. These games are designed to enhance student engagement and foster an interactive learning environment. As highlighted by Ohler (2021), "Digital storytelling offers an engaging platform for students to connect with their learning

objectives, promoting creativity and critical thinking through interactive tools."

In this study, the focus is on the digital storytelling game, which will be utilized to facilitate writing instruction. The implementation of this app will be evaluated based on the frequency and methods of its use during the intervention.

2. Dependent Variables

Writing skill, the primary dependent variable in this study is the writing skills of grade 8 students, assessed after the intervention. As noted by Mertler (2021), "Effective writing instruction fosters improvement in students' ability to organize ideas, enhance vocabulary usage, and communicate effectively." The variable will be measured using a writing test administered both before (pretest) and after (posttest) the implementation of digital storytelling game.

D. Population and Sample

1. Population of the Research

In research, the term “population” refers to all individuals or objects that have certain characteristics relevant to the research. For this study, the population is all students in class 8^{th} at MTs Al-Azhar Center OKU. According to Creswell and Creswell (2023), “A population is a group of individuals or objects that have one or more characteristics of interest to the researcher.”

In this study, the relevant characteristic is the group of grade 8th female students whose writing skills evaluated after the implementation of the digital storytelling game intervention.

Table 3.1

Population of Study

No	Class	Number of Students
1.	8.A	32
2.	8.B	30
3.	8.C	30
4.	8.D	31
5.	8.F	31
6,	8.G	30
7.	8.H	31
8.	8.I	30
Total		245

2. Sample of the Research

In this study, I used the cluster random sampling technique to determine the sample. This technique is done by dividing the population into several groups (called clusters), then randomly selecting one of the groups as the research sample. In this context, each class in level 8th is considered a cluster. Furthermore, the names of the classes were randomly shuffled, and the results showed that female class 8.I was selected as the

sample. This is in line with the opinion of George (2021) who states that cluster random sampling is suitable for use in educational research when random selection of individuals is difficult, for example for reasons of time, cost, or administrative arrangements. By randomly selecting one class, researchers can still get a sample that represents the population as a whole.

Table 3.2

Sample of Study

No	Class	Number of Students
1.	8.I	30

E. Techniques of Collecting the Data

The data collection technique used in this study is a **test**. These methods are designed to measure students' writing skills before and after the implementation of digital storytelling games. In this study, the author used the Writing Test as a data collection technique to assess the writing skills of seventh grade students of MTs Al-Azhar Center OKU. This method allows for a thorough assessment of students' ability to write coherent and structured texts.

To address the writing skill challenges in MTs Al-Azhar Center OKU, this intervention involves the implementation of digital storytelling activities supported by English teacher as the first and second ratter and the researcher as the third ratter, who will assist in evaluating and correcting students' writing test results. With the support of research evidence and the involvement of

experienced teachers, the digital storytelling approach is expected to provide an effective and engaging way to improve students' writing performance in this context.

Prior to the intervention, a pretest was administered to evaluate the students' initial writing skill. This assessment covered various aspects of writing, including structure, vocabulary, creativity, and clarity of idea presentation. According to Creswell and Creswell (2023) Pretests are used to establish baseline data, providing a point of comparison for post-intervention analysis. After the intervention, a posttest was conducted to assess students' writing skills following the implementation of digital storytelling games. This test was designed to evaluate whether using the Digital Storytelling Game contributed to improvements in their writing abilities. As emphasized by Fraenkel et al. (2019) Posttests are integral to determining the effectiveness of interventions by measuring outcomes after treatment.

F. Validity and Reliability of the Test

1. Validity of the test

In the context of this research entitled "Implementing Digital Storytelling Game for Writing Skills Development in Grade 8th at MTs Al-Azhar Center OKU," validity becomes a crucial aspect to ensure that the instruments used to measure students' writing skills truly reflect the abilities you want to evaluate. Validity in writing skills testing has particular relevance to research objectives.

According to Tjahyadi (2024), “content validity ensures that all dimensions of the construct to be measured have been taken into account”. Thus, it is important to involve linguists or educators in the instrument development process to ensure that all relevant aspects of writing skills are covered.

Table 3.3

Specification of Test Item

Objective of Test	Indicator	Topic	Type of Test
To know the students ability in writing narrative text.	- Students are able to use content that relevant and creative. - Students are able to using structure the story with a clear beginning, middle, and end. - Students are able to using appropriate vocabulary and sentence structures. - Students are able to apply correct spelling	Journey to the Secret Island.	Essay Test

	punctuation, and grammar. - Students are able to Implement incorporate elements that engage the audience.		

2. Reliability of the Test

Reliability refers to the consistency and stability of a measurement instrument when applied multiple times under similar conditions. In educational research, a reliable assessment tool ensures that the results are consistent, regardless of who evaluates the students or when the evaluation takes place. In this study, titled "Implementation of Digital Storytelling Games for Writing Skills Development in Grade 8th MTs Al-Azhar Center OKU", reliability is crucial in determining whether the writing assessment rubric provides stable and consistent scores. To find out whether the test items are reliable or not, the writer concluded the following two hypothesis:

a. If the Cronbach's Alpha point was more than 0,70, it means that the items were reliable
b. If the Cronbach's Alpha point was less than 0,70, it means that the items were not reliable

The score data from the three raters were analyzed using the SPSS 25 program with the Cronbach's Alpha method to measure internal consistency between raters. The test results can be seen in the following table:

Table 3.4

Reliability using Cronbach's Alpha

Cronbach's Alpha	N of Items
.955	27

Based on the table above, the Cronbach's Alpha value of 0. 955, it was more than 0,70. It means the items of the items of the instruments were reliable and could be used as the instruments to get data of the research.

G. Technique for Analyzing the Data

Table 3.5

Scoring Rubric Writing Assesment

Skill Area	**Test Item Description**	**Score 1 (Poor)**	**Score 2 (Fair)**	**Score 3 (Good)**	**Score 4 (Very Good)**	**Score 5 (Excellent)**
Content	Write a short story using a digital storytelling tool.	Not relevant to the prompt; lacks originality or creativity.	Minimally relevant; ideas are underdeveloped and lack creativity.	Generally relevant; ideas are clear and show basic creativity.	Relevant; ideas are engaging and display a fair level of originality.	Highly relevant; ideas are unique, imaginative, and highly original throughout.

Skill Area	Test Item Description	Score 1 (Poor)	Score 2 (Fair)	Score 3 (Good)	Score 4 (Very Good)	Score 5 (Excellent)
Organization	Structure the story with a clear beginning, middle, and end.	No clear structure; story is confusing or disorganized.	Weak structure; poor transitions between parts.	Basic structure (beginning–middle–end) present but transitions may be abrupt.	Clear structure; narrative flows fairly well.	Strong and coherent structure; story flows smoothly and logically.
Language Use	Use appropriate vocabulary and sentence structures.	Limited vocabulary; sentences are overly simple or ineffective.	Some variety in vocabulary; sentence structure is repetitive or basic.	Adequate vocabulary; some sentence variety with minor errors.	Rich vocabulary; varied sentence structures used effectively.	Excellent vocabulary use; complex and effective sentence structures throughout.
Mechanics	Correct spelling, punctuation, and grammar.	Frequent spelling, punctuation, or grammar errors that interfere with meaning.	Several noticeable errors that affect readability.	Some minor errors, but the story remains understandable.	Few errors that do not interfere with meaning.	Almost no errors; spelling, punctuation, and grammar are consistently accurate.
Engagement	Incorporate elements that engage the audience (e.g., dialogue,	No engaging elements; story is flat or uninteresting.	Minimal use of engaging features; limited audience appeal.	Some engaging elements present but used inconsistently.	Effective use of descriptive or interactive elements.	Highly engaging; use of dialogue, description, or media enhances storytelling

Skill Area	Test Item Description	Score 1 (Poor)	Score 2 (Fair)	Score 3 (Good)	Score 4 (Very Good)	Score 5 (Excellent)
	descriptive language).					significantly.

Source : Brown (2023)

$$\text{Student Score} = \left(\frac{X}{N}\right) \times 100$$

Description:

X = Score obtained by students (Score Obtained)

N = Maximum possible score (Maximum Score)

100 = Conversion to percentage scale

To make description of students score the researcher used the score range and the criteria. It is shown on the following table:

Table 3.6

The Range of Criteria

Score Range	Category
80-100	Excellent
70-79	Very Good
60-69	Good
50-59	Poor
<49	Very Poor

Source: Sudijono 2012

H. Statistical Analysis

The researcher analyzed the data after getting the score of pre-test and post-test in experimental class. The reseacher used SPSS version 25 (paired sample

T-test) together result of the investigation order to know the significance the treatment test. There are two hypothesis as the conclusion of this analysis steps:

(Ha): It is significantly effective using Digital Storytelling Game as the digital media in writing skills to the grade 8th students at MTs Al-Azhar Center OKU.

(Ho): It is not significantly effective using Digital Storytelling Game as the digital media in writing skills to the grade 8th students at MTs Al-Azhar Center OKU.