CHAPTER III

RESEARCH METHOD

This chapter provides detailed information about the method used in this study. In addition, this chapter presents research design, population and sample of the research, research instrument, treatment procedure, data collection technique, and data analysis technique.

A. Research Design

The effectiveness of using Webtoon in reading activities is investigated in this study through a quasi-experimental design with a pre-test and post-test control group approach. This design is frequently utilized when the researcher wants to assess cause-and-effect relationships in educational settings yet random assignment is not feasible (Creswell & Creswell, 2018). Quasi-experimental methods help evaluate the impact of technology in education and provide insights into the causal effects of educational interventions and policies (Samsudin & Sulaiman, 2022; Gopalan & Ahn, 2020). As Creswell and Creswell (2018) note, quasi-experimental designs are particularly useful in real-world educational environments where strict control is difficult, but valid comparisons can still be made. This design also offers empirical evidence on classroom practices, addressing common concerns and time constraints (Lam & Wolfe, 2022). The procedure involves two groups: an experimental group, which utilizes Webtoon as a reading tool, and a control group, which continues with traditional material, which is the school's coursebook. The logic behind this setup is to test whether the specific intervention, in this case, digital comic media, has a measurable effect on the outcome variable (Creswell &

Creswell, 2018).

In quantitative research, variables are defined as measurable characteristics or properties that can vary and be manipulated to observe their effect (Creswell & Creswell, 2018). This research focuses on examining the connection between two primary variables: reading comprehension abilities as the dependent variable and Webtoons as the independent variable. The utilization of digital comics as a teaching tool, particularly integrating Webtoon content, as the independent variable, throughout the reading activity. By providing visually supported narratives, this strategy seeks to improve students' comprehension of the texts. The dependent variable, on the other hand, is reading comprehension abilities, which demonstrate how effectively students can interpret, evaluate, and understand written material. In comparison to traditional text-based instruction, this study examines the effectiveness of Webtoon to determine whether exposure to this digital platform may considerably improve students' reading comprehension skills.

Table 3.1 Research Design

Group	Pre-Test	Treatment	Post-Test
Experimental	✓	Webtoon	✓
Control	✓	School's Printed Textbooks	✓

B. Population and Sample of the Research

The population of this research is the tenth-grade students from SMKN 3 Kediri. In research, a population is a group of individuals who share characteristics and from whom a researcher seeks to generalize the study's findings (Creswell & Creswell, 2018). There is a total of 11 classes for tenth-grade students with an average number of students per class of 34 students.

A sample is a portion of the target population whom a researcher intends to

analyze in order to draw conclusions about the entire population (Creswell & Creswell, 2018).There are two classes of the tenth-grade students: precisely 35 students from *Tata Busana* (Fashion Design) class 1, as the experimental group is treated using Webtoon content, and 35 students from *Tata Busana* (Fashion Design) class 2 as the control group using the narrative text material from the school's printed textbooks. This class is chosen as a sample because of the teacher's consideration. In quantitative studies, selecting participants through specific criteria such as availability, teacher recommendation, or similar characteristics can be categorized as a form of purposeful sampling within a quasi-experimental framework (Creswell & Creswell, 2018). Furthermore, the researcher found the same problem because the students have difficulties comprehending English texts, especially narrative text. In this study, the researcher used Webtoon content in the teaching and learning process.

C. Research Instruments

A series of 25 multiple-choice questions was employed as the research instrument in this study to evaluate students' reading comprehension abilities both before and after the treatment. In quantitative research, instruments such as tests are structured tools used to gather numeric data about specific variables, and they are essential for measuring outcomes consistently and reliably (Creswell & Creswell, 2018). The tests are divided into two sections, a pre-test and a post-test, each of which assesses several aspects of reading comprehension, including literal, inferential, and critical comprehension.

1. Pre-test

The pre-test is administered before the treatment to determine students' initial reading comprehension ability. It serves as a baseline to assess their prior knowledge and skills in understanding texts. The test includes 25 multiple-choice questions covering various aspects of reading comprehension. The blueprint categorizes questions based on specific comprehension skills, such as identifying the main idea, understanding details, recognizing cause-effect relationships, and evaluating character motives. Pre-tests are commonly used in experimental designs to measure initial conditions or knowledge prior to any intervention, allowing researchers to determine growth or change after treatment (Creswell & Creswell, 2018). The complete blueprint of the pre-test is presented in Table 3.2: The Blueprint of Pre-Test and Post-Test.

2. Post-test

The post-test is conducted after the treatment to evaluate students' reading comprehension progress. It is designed to measure improvements among students who used Webtoon as a reading tool (experimental group) compared to those who used the school's printed textbook (control group). The test maintains the same format as the pre-test to ensure consistency in assessment and comparison. The complete blueprint of the post-test is presented in Table 3.2: The Blueprint of Pre-Test and Post-Test.

The test consists of 25 multiple-choice questions, each with four answer choices, distributed across different comprehension skills. Literal comprehension questions assess students' ability to identify the main idea and recall specific details,

such as determining the main idea of the story. Inferential comprehension questions evaluate students' ability to understand cause-and-effect relationships and character motives, for example, analyzing why a character chose to leave. Critical comprehension questions focus on evaluating and comparing ideas in the text, such as identifying the lesson that can be learned from the story. To ensure the instrument's quality, both validities, the degree to which the test measures what it is intended to measure, and reliability, the consistency of the measurement, must be considered (Creswell & Creswell, 2018). These aspects help confirm that the scores obtained from the instrument are both meaningful and dependable for evaluating learning outcomes.

The table below outlines the question distribution based on Barrett's taxonomy theory (the detailed questions can be seen in the appendix):

Table 3.2 The Blueprint of Pre-test and Post-test

Category	Objective	Pre-test Item Numbers	Post-test Item Numbers
Literal Comprehension	Finding main idea	1, 4, 7, 10	1, 4, 7, 10
	Finding details	2, 5, 8, 11	2, 5, 8, 11
Inferential Comprehension	Finding cause-effect	3, 6, 9, 12	3, 6, 9, 12
	Finding character motives	13, 16, 19, 22	13, 16, 19, 22
Critical Comprehension	Evaluating story	14, 17, 20, 23	14, 17, 20, 23
	Making judgments	15, 18, 21, 24, 25	15, 18, 21, 24, 25

Each aspect is distributed evenly between the Webtoon and the school's printed book material. All questions are multiple-choice with four options, ensuring

a balance between challenging and achievable difficulty levels. In educational research, it is essential to design test items that vary in complexity to capture a range of student abilities and to avoid floor or ceiling effects (Creswell & Creswell, 2018). Question items are chosen to match intermediate EFL levels to ensure relevance to students' English proficiency. Aligning the instrument with students' language proficiency level is critical in ensuring construct validity and obtaining meaningful data (Creswell & Creswell, 2018).

D. Treatment Procedure

This research used a quasi-experimental design with two groups: an experimental class utilizing a Webtoon titled "Ghost Teller" and a control class using traditional story materials from school's printed textbooks. Both follow three stages: pre-teaching, whilst-teaching, and post-teaching. The following procedure outlines the steps for both groups. The sequential, step-by-step process for carrying out the experiment must be thoroughly explained by the researcher. The cover story, the design, the manipulated and outcome variables, and the activity timeline should all be accessible by the reader (Creswell & Creswell, 2018).

Table 3.3 Treatment Procedure

Stages	Experimental Class	Control Class
Pre-Teaching (1 Meeting)	● The teacher greets the students and introduces the topic of narrative text. ● The teacher explains the learning objectives and briefly reviews the definition, social function, generic structure, and language features of narrative text. ● The teacher introduces several vocabulary items related to the story and asks students to predict the possible content of the story based on the	● The teacher greets the students and introduces the topic of narrative text. ● The teacher explains the learning objectives and briefly reviews the definition, social function, generic structure, and language features of narrative text. ● The teacher introduces several vocabulary items related to the story and asks students to predict the possible content of the story based on the

Stages	Experimental Class	Control Class
	keywords provided.	keywords provided.
Whilst-Teaching 1 BKOF & MOT	● The teacher introduces several visual panels from the Webtoon *Ghost Teller* to activate students' prior knowledge and build familiarity with the story. ● Students discuss the characters, setting, and possible conflict shown in the visual panels. ● The teacher introduces the Webtoon *Ghost Teller* as the reading material and explains how students will access and read the story through their digital devices. ● Students read the selected episodes individually or in small groups while paying attention to both the written text and visual elements. ● The teacher guides students in identifying the orientation, complication, resolution, and moral value of the story based on the Webtoon.	● The teacher introduces several pictures and examples related to the printed narrative text to activate students' prior knowledge. ● Students discuss the characters, setting, and possible conflict based on the text provided. ● The teacher introduces the narrative text from the school's printed textbook as the reading material. ● Students read the narrative text individually or in small groups while focusing on the written text. ● The teacher guides students in identifying the orientation, complication, resolution, and moral value of the story based on the printed text.
Whilst-Teaching 2 JCOT	● The teacher divides students into small groups. ● Students discuss the content of the Webtoon collaboratively and answer comprehension questions related to the story. ● Students identify characters, setting, conflict, and moral value from the Webtoon through group discussion. ● The teacher facilitates classroom discussion and guides students in answering literal, inferential, and evaluative comprehension questions.	● The teacher divides students into small groups. ● Students discuss the content of the printed narrative text collaboratively and answer comprehension questions related to the story. ● Students identify characters, setting, conflict, and moral value from the printed text through group discussion. ● The teacher facilitates classroom discussion and guides students in answering literal, inferential, and evaluative comprehension questions.
Whilst-Teaching 3 ICOT	● Students individually re-read the selected Webtoon episodes and answer reading comprehension questions independently. ● Students identify language features such as action verbs and thinking verbs found in the story. ● Students write a short summary of the story by identifying the	● Students individually re-read the printed narrative text and answer reading comprehension questions independently. ● Students identify language features such as action verbs and thinking verbs found in the text. ● Students write a short summary of the story by identifying the orientation, complication,

Stages	Experimental Class	Control Class
	orientation, complication, resolution, and moral value using their own words. ● The teacher monitors students' individual work and provides guidance when necessary.	resolution, and moral value using their own words. ● The teacher monitors students' individual work and provides guidance when necessary.
Post-Teaching (1 Meeting)	● The teacher leads a classroom discussion about the moral value of the story and students' understanding of the narrative text. ● Students share their opinions and difficulties during the learning process. ● The teacher concludes the lesson and reinforces the main points of narrative text. ● The teacher administers a post-test to evaluate students' reading comprehension after the implementation of Webtoon as the learning medium.	● The teacher leads a classroom discussion about the moral value of the story and students' understanding of the narrative text. ● Students share their opinions and difficulties during the learning process. ● The teacher concludes the lesson and reinforces the main points of narrative text. ● The teacher administers a post-test to evaluate students' reading comprehension after the learning process using the school's printed textbook.

The instruction of treatment was administered over five sessions. The first meeting was allocated for pre-teaching activities, including administering the pre-test. This was followed by three meetings dedicated to whilst-teaching, where the instructional treatment, Webtoon, was implemented. Post-teaching activities, such as administering the post-test to assess students' reading comprehension following the intervention, were place during the last meeting. This approach matches with a pretest-posttest control group design, in which researchers administer an initial measure, treat the experimental group, and then reassess both groups to ascertain the intervention's impact (Creswell & Creswell, 2018).

E. Data Collection Technique

A pre-test, treatment, and post-test are all part of the data collecting procedure for both the experimental and control groups. In experimental research, data collection typically includes structured steps such as pre-testing, applying a

treatment to the experimental group, and post-testing to assess changes resulting from the intervention (Creswell & Creswell, 2018). The pre-test is conducted to assess students' initial reading comprehension levels. During the treatment, the experimental group reads a Webtoon story, while the control group reads a narrative text from the school's printed textbook. After the treatment, a post-test is administered to measure any improvement in students' reading comprehension. Administering both pre- and post-tests allows researchers to observe differences that can be attributed to the treatment, supporting causal inference in quasi-experimental designs (Creswell & Creswell, 2018). The results from both tests are compared to determine the effectiveness of Webtoon as reading media.

F. Validity and Reliability

1. Validity Test

The validity test was used to determine whether each item in the test accurately measured students' reading comprehension. In this study, each item's validity was assessed by comparing the r-count and r-table. In the validity testing, the r-table value was 0.3338 (df = 35-2; sig = 5%). Each item was categorized as valid if r-count > r-table (0.3338), whereas an item was categorized as invalid when r-count < r-table (0.3338). The result of the validity test can be seen in Table 3.4 below.

Table 3.4 Result of Validity

Pretest				Posttest			
No	**R Table**	**R Count**	**Description**	**No**	**R Table**	**R Count**	**Description**
1	0.3338	0.529	Valid	**1**	0.3338	0.453	Valid
2	0.3338	0.439	Valid	**2**	0.3338	0.454	Valid
3	0.3338	0.458	Valid	**3**	0.3338	0.462	Valid

Pretest				Posttest			
No	**R Table**	**R Count**	**Description**	**No**	**R Table**	**R Count**	**Description**
4	0.3338	0.384	Valid	**4**	0.3338	0.439	Valid
5	0.3338	0.398	Valid	**5**	0.3338	0.513	Valid
6	0.3338	0.458	Valid	**6**	0.3338	0.576	Valid
7	0.3338	0.622	Valid	**7**	0.3338	0.534	Valid
8	0.3338	0.441	Valid	**8**	0.3338	0.583	Valid
9	0.3338	0.446	Valid	**9**	0.3338	0.413	Valid
10	0.3338	0.598	Valid	**10**	0.3338	0.437	Valid
11	0.3338	0.387	Valid	**11**	0.3338	0.543	Valid
12	0.3338	0.551	Valid	**12**	0.3338	0.429	Valid
13	0.3338	0.398	Valid	**13**	0.3338	0.437	Valid
14	0.3338	0.416	Valid	**14**	0.3338	0.542	Valid
15	0.3338	0.477	Valid	**15**	0.3338	0.399	Valid
16	0.3338	0.443	Valid	**16**	0.3338	0.821	Valid
17	0.3338	0.392	Valid	**17**	0.3338	0.437	Valid
18	0.3338	0.447	Valid	**18**	0.3338	0.450	Valid
19	0.3338	0.405	Valid	**19**	0.3338	0.551	Valid
20	0.3338	0.394	Valid	**20**	0.3338	0.539	Valid
21	0.3338	0.499	Valid	**21**	0.3338	0.535	Valid
22	0.3338	0.485	Valid	**22**	0.3338	0.438	Valid
23	0.3338	0.392	Valid	**23**	0.3338	0.460	Valid
24	0.3338	0.487	Valid	**24**	0.3338	0.485	Valid
25	0.3338	0.413	Valid	**25**	0.3338	0.513	Valid

Based on Table 4.3 above, it can be seen that all items in the pre-test and post-test obtained r-count > r-table (0.3338). This means that all items fulfilled the validity criterion. Therefore, all pre-test and post-test items were found to be valid and may be used as research instruments.

2. Reliability Test

The reliability test was carried out to examine the consistency of the instrument. An instrument is categorized as reliable when it can produce stable and dependable results. In this study, reliability was measured by using Cronbach's Alpha. The instrument was considered reliable when Cronbach's Alpha > 0.70. The

result of the reliability test can be seen in Table 3.5 below.

Table 3.5 Result of Reliability

Item	Total Item	Cronbach's Alpha	Standard of Cronbach's Alpha	Description
Pretest	25	0.840	0.7	Reliable
Posttest	25	0.873	0.7	Reliable

According to Table 4.4, the Cronbach's Alpha value for the pre-test was 0.840, while the post-test had a value of 0.873. Since both instruments were higher than 0.70, it could be stated that the instrument had a high level of reliability. Thus, the pre-test and post-test were both reliable and adequate for use in this research.

G. Data Analysis Technique

This study employs Analysis of Covariance (ANCOVA) using SPSS software to examine the effectiveness of Webtoon in improving students' reading comprehension. ANCOVA was chosen as it enables for the comparison of post-test results between control and experimental groups while taking into consideration the influence of pre-test results. This statistical method is appropriate for determining whether any observed differences in post-test performance are truly due to the treatment rather than pre-existing variations in students' abilities. When the independent variable is categorical (group type) and the dependent variable is continuous (test scores), and there's a need to statistically control a covariate (pre-test score), ANCOVA is a powerful option to enhance the validity and precision of estimates (Creswell & Creswell, 2018).

The analysis begins by entering the data into SPSS, including the students'

group (experimental or control), their pre-test scores, and their post-test scores. In SPSS, the dependent variable is the post-test scores, the group is the fixed factor, and the pre-test scores are the covariate. This setup enables the software to adjust the post-test means based on initial differences and assess the true impact of the intervention.

Before interpreting the ANCOVA results, it is essential to test four assumptions. First, the normality assumption requires that the post-test scores are approximately normally distributed. Second, the assumption of variance homogeneity must be met, implying that the dependent variable's variances are similar across groups. Third, the assumption of linearity suggests that there is a linear relationship between the covariate (pre-test) and the dependent variable. Fourth, the assumption of homogeneity of regression slopes must also be met. This indicates that the connection between the covariate and the dependent variable must be consistent across all groups. Researchers must consider whether statistical assumptions are met before running ANCOVA and report how any violations are addressed, as failure to do so may result in incorrect conclusions (Creswell & Creswell, 2018).

The ANCOVA output's significance value (p-value) is used to determine whether the null hypothesis should be accepted or rejected. If the Sig. value is less than 0.05, the null hypothesis is rejected, indicating a statistically significant difference in reading comprehension scores between the two groups after the treatment. On the contrary, if the Sig. value is equal to or greater than 0.05, the null hypothesis is accepted, suggesting that the treatment did not result in a significant

difference. Additionally, the Partial Eta Squared score will be presented in order to describe effects size, indicating how significant of the variation in post-test results may be due to Webtoon intervention. Reporting both statistical significance and effect size offers a more comprehensive interpretation, as statistical tests indicate whether an effect exists, while effect sizes convey its practical significance (Creswell & Creswell, 2018).