BAB III

RESEARCH METHODS

A. Researh Design

This study is an experimental study employing a quasi-experimental research design. A quasi-experiment aims to determine whether a specific treatment has a significant impact on a particular outcome. This method incorporates elements of randomized experimental design, including pre-test and post-test measurements and comparisons between the treatment and control groups, to evaluate whether the Cake application can enhance students' speaking skills. The research design follows a pre-test and post-test control group design.

This design involves two classes: an experimental class that receives treatment using the Cake application and a control class that follows conventional teaching methods. Both classes undergo pre-tests and post-tests. The pre-test is conducted before the intervention to assess students' initial speaking abilities, while the post-test evaluates improvements after the intervention. The difference in results between the two groups will indicate the effectiveness of the Cake application in enhancing students' speaking skills.According to Cresswell (2012), this research design helps establish causal relationships by comparing students' progress in both groups. The application of a quasi-experimental design allows for controlled observations while maintaining a natural classroom

setting, making the findings more applicable to real-world educational contexts. This study also considers external factors that may influence students' learning progress, ensuring a more reliable assessment of the impact of technology on language learning. Additionally, this design minimizes bias and enhances the validity of the findings by incorporating statistical analysis to measure the significance of differences in student performance between the experimental and control groups.

Table III.1
The research design

Class	Pre-test	treatment	Post-test
VII.5	X_1	0	X_2
VII.6	X_1	-	X_2

Where:

VII.5 : Experiment Class Taught Using Cake Application

VII.6 : Taught With Conventional Method

X_1 : Pre-Test

-: No Treatment

O : Cake Application Media Treatment

X_2 : Post-Test

B. Research Setting

This research will be carried out on class VII students at SMPN 1 Sungai Aur.The location of this research was in Sungai Aur, Sungai Aur District, West Pasaman Regency, West Sumatra.

C. Population and Sample

1. Population

According to Creswell (2012), a population is a group of individuals who have the same characteristics. The population of this research was students of class VII of SMPN 1 Sungai Aur. Students of VII of SMPN 1 Sungai Aur,consist of six classes. The total number of students is 150.

Table III.2
population of the research

NO	CLASS	STUDENTS
1	VII 1	25
2	VII 2	25
3	VII 3	25
4	VII 4	25
5	VII 5	25
6	VII 6	25

The six classes in this study were analyzed using SPSS (Statistical Package for the Social Sciences) software to test the normality and homogeneity of the data. This test aims to determine whether the sample used is representative and meets the necessary statistical assumptions. The results of the normality and homogeneity tests are presented in the following table.

Table III.3
Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
VII.1	.143	25	.200*	.947	25	.219
VII.2	.161	25	.092	.933	25	.100
VII.3	.147	25	.169	.953	25	.290
VII.4	.188	25	.023	.946	25	.201
VII.5	.185	25	.028	.941	25	.157
VII.6	.151	25	.146	.950	25	.253

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table III.4
Test of Homogenity

Test Results		
Box's M		5.021
F	Approx.	.988
	df1	5
	df2	26660.571
	Sig.	.423

Tests null hypothesis of equal population covariance matrices.

After conducting normality and homogeneity tests using SPSS 27 software, the results of the analysis showed that all classes in this study had a normal distribution and were homogeneous as a whole population. The total population in this study consisted of 150 students, with normal and homogeneity significance values of more than 0.05, which indicated that the variance between data groups was uniform. After ensuring that the

population fulfills the assumptions of normality and homogeneity, the researcher continues the next stage, which is to determine the sample to be used in this study.

2. **Sample**

The sample determination in this study used cluster random sampling technique. According to Gay (2000:110), cluster random sampling is a sampling technique in which the selection is made randomly to groups, not individuals. This technique was chosen because it is difficult to regroup students into different groups from the existing ones.

In this study, researchers determined the experimental class and control class. Since all classes were declared normal and homogeneous, then all classes could be selected using the random sampling method using a lottery. The process was carried out by giving random labels to six classes, namely class VII-1 was labeled A, class VII-2 was labeled B, class VII-3 was labeled C, class VII-4 was labeled D, class VII-5 was labeled E, and class VII-6 was labeled F. The whole lottery was then put into a box, shaken, and two random lots were taken. The results of the lottery determined that class VII-5 became the experimental class, which received the treatment of using Cake application in learning to speak, while class VII-6 became the control class, which used conventional learning methods.

The total sample in this study amounted to 50 students, consisting of 25 students in the experimental class and 25 students in the control

class. This sample was chosen to ensure that the analysis of pre-test and post-test results could be conducted comprehensively to evaluate the effectiveness of using Cake application in improving students' speaking skills.

Table III.5
population of the sample

NO	CLASS	Categories	SAMPLE
1	VII 5	Exsperiment	25
2	VII 6	Control	25
TOTAL SAMPLING		**50**	

D. Research Instrumen

According to Sugiyono (2011: 147), research instruments are means used to collect data to measure phenomena, both in natural and social contexts. Research instruments act as tools that help researchers in the data collection process to be more effective and efficient. Thus, the data obtained becomes more accurate, complete, and systematically arranged, making it easier for further analysis. The existence of research instruments is crucial in determining the methods and steps needed to obtain data in the field.

In this study, students were given a pre-test to measure their speaking ability before the use of Cake application as a learning media. Furthermore, a post-test was conducted to evaluate the development of their speaking skills after using the application. The assessment of students' speaking skills was conducted based on a rubric developed by

Hughes (2003), which classifies speaking skills into six assessment criteria, namely pronunciation, grammar, vocabulary, fluency, and comprehension. Details about the assessment criteria are presented in the following table:

Table III.6
Blue print of speaking test

No	**Dimension**	**Indicator**	**Focus speaking**	**Questions**	**Item**
1.	Speaking test	Describing people	Vocabulary, pronoun, Fluency	Describe one of your members (father,mother,brother,sister,grand father,grandmother), explaining their name,age,physical traits,personality,hobbies or interests. You will have 2-3 minutes to talk,	1
	Total questions 1				

Table III.7
Value Indicators

No	Criteria	Score	Descrition
1.	Pronunciation	0	Pronunciation frequently unintelligible.
		1	Frequent gross errors and very heavy accent make understanding difficult, require frequent repetition.
		2	Foreign accent require concentration listening, and mispronunciation lead to occasional misunderstanding and apparent errors in grammar or vocabulary
		2	Marked foreign accent and occasional mispronunciationwhich do not interfere with understanding
		3	No conspicuous mispronunciation, but would

			not be taken for native speaker.
		4	Native pronunciation, with no trace of foreign accent.
2.	Grammar	6	Grammar almost entirely inaccurate expert in stock pharases
		12	Constant error showing control of every few major patterns and fluently preventing communication
		18	Frequent errors showing control of every few major patterns uncontrolled and causing occasional irritation and misunderstanding.
		24	Occasional errors showing imperfect control of some patterns but no weakness that causes misunderstanding.
		30	Few errors, with no patterns of failure
		36	No more than two errors during the interview
3.	Vocabulary	4	Vocabulary inadequate for evens the simplest conversation
		8	Vocabulary limited to basic personal and survival areas
		12	. Choice of words sometimes inaccurate, limitations of vocabulary prevent discussion of some common professional and social topics.
		16	Professional vocabulary adequate to discuss special interest: general vocabulary permits discussion of any non-technical subject with some circulumlocutions.
		20	Professional vocabulary board and precise: general vocabulary adequate to cope with

			complex practical problems and varied social situation.
		24	Vocabulary apparently as accurate and extensive as that of an educates native speakers
4.	Fluency	2	Speech is so halting and fragmentary that conversation in virtually impossible.
		4	Speech is slow and uneven except for short or routine sentence
		6	Speech is frequently hestitant and jerky: sentence may be left uncompleted
		8	Speech is occasionally hestitant, with some unevennes caused by repharasing and grouping for words
		10	Speech is effortless and smooth,but perceptively nonnative in speed and evenness.
		12	Speech on all professional and general topics as effortles and smoth as a native speaker‟s
5.	Comprehension	6	Understand too little for the simplest type of conversation.
		12	Understand only slow, very simple speech
		18	Understand quite well formal educated speech directed to him, but requires occasional repetition and repharasing.
		24	Understand careful,somewhat simplified speech direct to him with considerable repitition and reprashing.
		30	Understand everything in normal educated

			conversation except for very colloquial or low frequency items, or exceptionally rapid or slurred speech.
		36	Understand everything in both formal and colloqial speech to be expected of an educated native speaker

Table III.8
The classification of students score

Aspect	Weight table					
	1	**2**	**3**	**4**	**5**	**6**
Pronoun	0	1	2	2	3	4
Grammar	6	12	18	24	30	36
Vocabulary	4	8	12	16	20	24
Fluency	2	4	6	8	10	12
Comprehension	4	8	12	16	20	24
Score	**16**	**33**	**50**	**66**	**83**	**100**

(***Arthur hughes,2003***)

E. Research Procedure

This research was conducted through three main stages, namely the preparation stage, the implementation stage, and the final stage. Each stage has an important role in ensuring that the research runs systematically and produces valid and reliable data.

1. Preparation Stage

At this stage, the researcher made various preparations needed before the implementation of the research. Some of the steps taken include:

a) Developing a research schedule so that the research implementation can run according to plan.

b) Preparing research instruments that will be used to measure students' speaking ability before and after treatment.

c) Giving pre-test to students

d) This stage aims to ensure that all aspects of the research are well prepared so as to obtain optimal results.

2. Implementation Stage

At this stage, researchers carried out the learning process by applying the Cake application as a learning media in improving students' speaking skills. During the study, students followed the teaching and learning activities according to the scenario that had been designed. The intervention was conducted in three meetings with the topic of describing people (family) in each session. The implementation of this research can be seen in more detail in the following table.

Table III.9

Procedure for Learning Steps

Pre-Teaching	
a. Opening and Greetings	➢ The teacher greets thestudents ➢ The teacher creates a pleasant learning atmosphere withlight questions.
b. Communicating Learning Objectives	➢ The teacher explained the learning objectives simply
c.Apperception and Motivation	➢ The teacher explains the importance of body parts vocabulary in everyday life.

	➢ The teacher displayed a picture of the human body as a discussion starter
Main-Teaching	
a. Activity 1: Observing and Recognizing Vocabulary	➢ The teacher opened the Cake application through the projector. ➢ The teacher showed a short video about body parts vocabulary from the Cake app. ➢ Students are asked to pay attention to the pronunciation and meaning of the vocabulary.
b. Activity 2: Pronunciation Practice	➢ Students download the Cake app. ➢ The teacher guides the students to select the body parts exercise module in the app. ➢ Students listen to vocabulary audio and try to imitate its pronunciation through the voice recording feature in the app.
a. Activity 3: Discussion and Collaboration	➢ Students work in pairs to practice describing body parts. ➢ The teacher provided feedback on the students' pronunciation.
b. Activity 4: Communicating	➢ Students make a brief description about themselves or their friends using the vocabulary they have learned. ➢ Students present their descriptions orally in front of the class or record them using the Cake app for evaluation.

Post-Teaching	
a. Review	➢ The teacher reviews the main vocabulary with a quick quiz.
b. Evaluation	➢ The teacher gives a simple written evaluation, such as labeling pictures of body parts. ➢ The teacher gives an oral evaluation by asking students to mention 5-10 vocabulary words they have learned.
c. Feedback	➢ The teacher praised the students for their participation. ➢ The teacher provides suggestions for improvement in specific pronunciations if necessary.
d.Homework	➢ Students are asked to write a brief description of their family members using body parts vocabulary. ➢ Students record the description using the Cake app and listen to it again to evaluate their pronunciation.
d. Closing	➢ The teacher concluded the lesson with enthusiasm ➢ The teacher reminds the students to continue their practice and prepare for the next material.

3. Final Stage

After the entire learning process was completed, the researcher conducted a post-test to measure the development of students' speaking skills after being given the treatment. The results of this post-test were compared with the results of the pre-test to determine the effectiveness of using the Cake application in improving students' speaking skills. The data obtained was then analyzed to see the extent to which the improvement occurred and which aspects experienced the most significant development.

F. Data Collection Technique

Data collection techniques in this study were carried out through speaking tests given to students. The main data used in this study are the scores obtained by students from the pre-test and post-test. The pre-test was given before the application of Cake application as a learning media, while the post-test was given after the students followed the learning by using the application.

In the implementation of the post-test, students were asked to perform descriptive monologues about their family members, in accordance with the material that had been learned. The speaking test was scored based on a scoring rubric developed by Hughes (2003), which includes aspects of pronunciation, grammar, vocabulary, fluency, and comprehension.

To evaluate the effectiveness of using Cake application in improving students' speaking skills, the post-test results of the experimental class using Cake application will be compared with the post-test results of the control class using conventional methods. This comparative analysis aims to determine the extent to which the Cake application can contribute to improving students' speaking skills significantly.

G. Technique of Data Analysis

The data for this study was obtained using the Statistical Product and Service Solutions (SPSS) software version 27. The pre-test and post-test data were analyzed by the researcher.

1. Descriptive Analysis

Descriptive analysis was conducted based on the sample size, minimum and maximum scores, mean values, and standard deviation. The students' pre-test and post-test scores were used to generate descriptive analysis. In this study, the researcher used two methods: manual calculations and SPSS version 27, which was employed to calculate descriptive data. The SPSS software was used to analyze all data collected in this study, particularly the paired sample t-test.

The researcher aimed to examine the impact of using the Cake application as a teaching medium for English on students' monologue abilities. The study began with a pre-test. After that, the researcher conducted three treatment sessions before administering the post-test.

Finally, the average scores of both tests were compared to determine whether there was a significant difference between the pre-test and post-test. Before conducting data analysis, the researcher performed assumption tests to assess differences in scores before and after the treatment. This test used a parametric method under the assumption that the data were normally distributed and homogeneous.

The pre-test and post-test questions were designed to assess students' vocabulary. Additionally, the initial analysis included normality and homogeneity testing.

a. Normality Test

The researcher conducted a normality test on the speaking test results. This test was performed to meet a fundamental requirement before statistical analysis. The normality test aimed to determine whether the pre-test and post-test data were normally distributed.

According to Shapiro and Wilk (1965), this method is highly effective for sample sizes ranging from 3 to 50 students. In practice, the Shapiro-Wilk test is often conducted using statistical software. Ghasemi and Zahediasl (2012) recommend using the p-value generated by the software as the basis for decision-making. If the p-value > 0.05 (with a significance level of 5%), the data is considered normally distributed.

This study involved 50 students, consisting of 25 students in the experimental class and 25 students in the control class. In statistics,

significance is a term used to determine the effect of a treatment on the research subjects.

b. Hypothesis Testing

Hypothesis testing is a statistical method used to determine whether there is sufficient evidence in a sample dataset to draw conclusions about a population. This process involves formulating a hypothesis established by the researcher.

The hypothesis in this study posits that students taught using the Cake application as a learning medium have higher monologue skills compared to those who do not use the application. Data was collected to assess whether there was sufficient evidence to support this hypothesis.

c. T-Test

In this study, the researcher used the t-test to examine the formulated hypothesis. The t-test was used to determine whether there was a significant difference in the level of success in learning speaking skills between students taught using the Cake application and those who were not.

The type of t-test used in this study was the paired sample t-test. This test involved two paired samples, namely the pre-test and post-test scores of the same students. The analysis was conducted using SPSS version 27 with the following criteria:

If the t-test result is positive (+):

a. If the p-value is greater than α = 0.05 (5%), the null hypothesis is accepted.
b. If the p-value or sig (2-tailed) is less than α = 0.05 (5%), the alternative hypothesis is accepted.

Through this analysis, the study aims to measure the effectiveness of using the Cake application as a learning medium to enhance students' speaking skills.