

**Using Wordwall as Interactive Digital Media in Improving  
Elementary Students' English Achievement**

**THESIS**

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MASTERY OF ACTION VERBS**

**THESIS**

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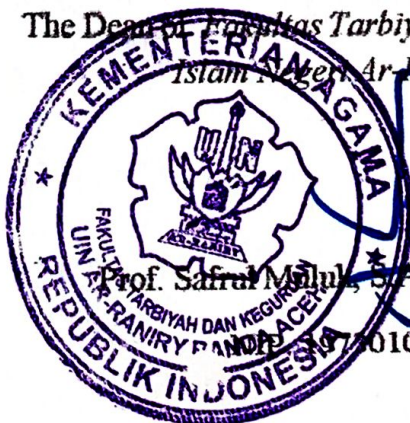
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## ABSTRACT

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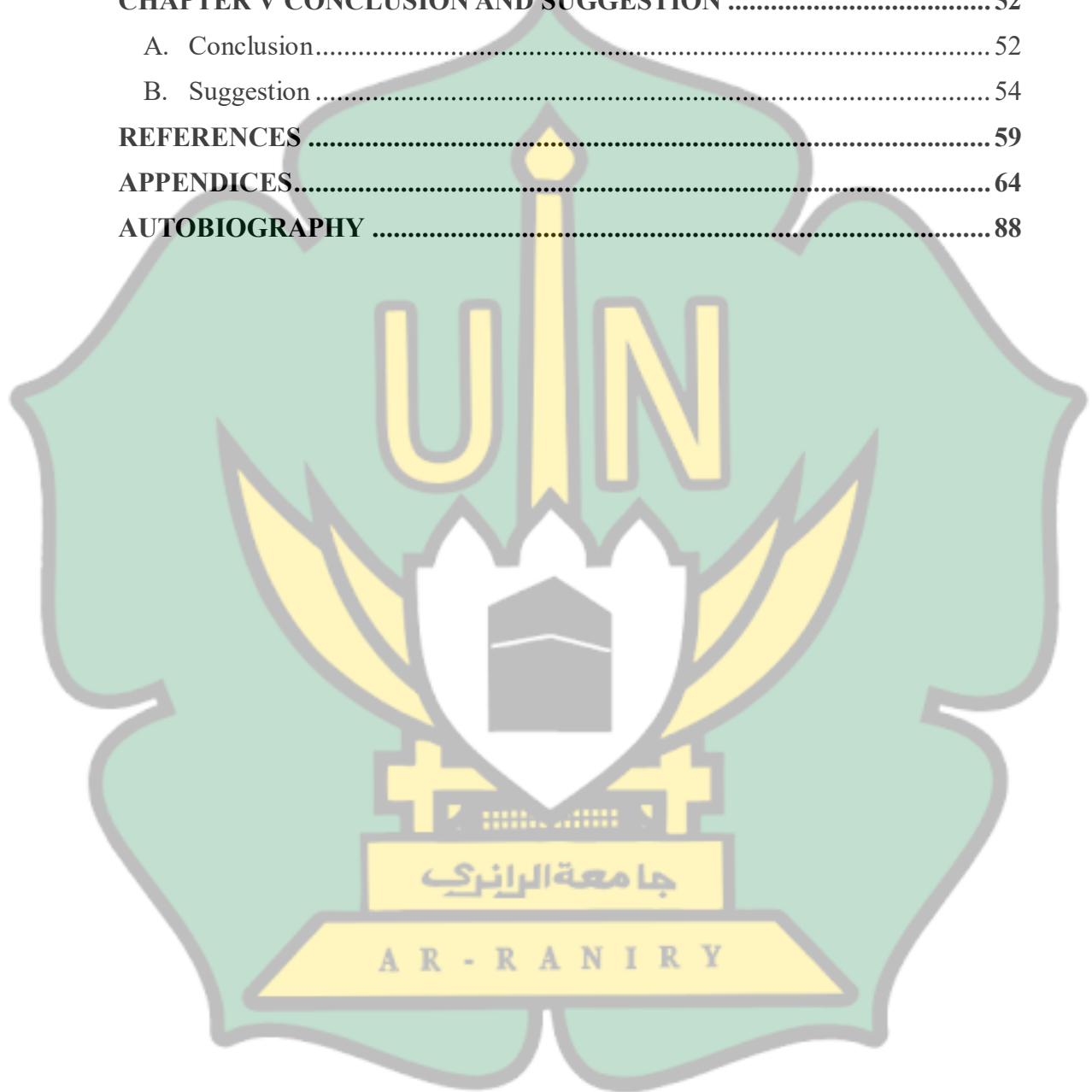
Keywords : Wordwall, interactive digital media, English learning outcomes, elementary school

English is an international language that is important to master starting in elementary school; however, English instruction at this level still often relies on conventional methods that do not actively engage students. This study aims to determine the effectiveness of Wordwall as an interactive digital tool in improving elementary school students' English learning outcomes. This study employed a quasi-experimental design with a nonequivalent control group model. The study population consisted of all fourth-grade students at MIN 20 Aceh Besar for the 2025/2026 school year, totaling 167 students. The sample was selected using purposive sampling, with Class IV-Digital serving as the experimental group (19 students) and Class IV-3 as the control group (38 students); However, based on data completeness criteria, the final sample analyzed consisted of 14 students in the experimental group and 25 students in the control group (a total of 39 students). The experimental group was taught using Wordwall, while the control group used conventional methods. Data were collected through pre-tests and post-tests consisting of 19 valid items and were then analyzed using a paired-sample t-test, an independent-sample t-test, and the Mann-Whitney U test. The results of the study showed that the average score of the experimental group increased from 59.64 to 77.86, while that of the control group increased from 54.00 to 63.00. The Mann-Whitney U test on the post-test scores yielded a p-value of 0.034 ( $p < 0.05$ ), so  $H_0$  was rejected and  $H_1$  was accepted, The experimental group achieved a higher mean rank (25.14) than the control group (17.12), as well as a significantly higher percentage of students meeting the minimum passing score (78.57% versus 36.00%). However, an independent-sample t-test of the gain scores for the two groups showed no significant difference (Sig. = 0.053,  $p > 0.05$ ). Thus, it can be concluded that the use of Wordwall has a positive impact on elementary school students' final English language learning outcomes compared to conventional methods, although it has not yet been proven to yield a significantly greater improvement than the control group.

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# CHAPTER I

## INTRODUCTION

### A. Background of study

English is one of the languages considered important to learn in today's era of globalization. English is recognized as an international language, so many countries around the world use it as their primary language for communicating with foreigners (Utami et al., 2022). As a universal language, English is used by most countries in the world and is one of the important international languages to master or learn. English has become an important global lingua franca in many aspects of modern life, such as international communication, business, technology, and education (Chairina, 2019).

The Indonesian government has made English the first foreign language used in Indonesia. In elementary, junior high, and high schools, English has become an important subject and has even been included in the curriculum (Sari et al., 2024). The Indonesian government began introducing English as early as possible to students in elementary schools (SD) or Madrasah Ibtidaiyah (MI) through the 1994 Basic Education Curriculum. Since the implementation of this curriculum, English has been a local content subject taught starting in the fourth grade of SD/MI (Maduwu, 2016). In the educational process, teachers' teaching skills in the classroom have a major impact on student learning success because they can influence student learning outcomes directly and indirectly (Dauyah et al., 2018).

Although the importance of English is increasingly felt in today's era of globalization, many students are not interested in learning it. In the world of education, this phenomenon has become a major concern because this lack of interest can have an impact on how students communicate, their academic opportunities, and competition in the global job market (Dalilah & Sya, 2022). Many students lack interest in English lessons, as evidenced by the large number of students who are unable to use English in their daily lives. However, English is needed today to obtain all kinds of international information (Sondakh & Sya, 2022). Students' lack of interest in learning English poses a major challenge for educators in many educational environments.

There are several reasons for students' low interest in learning English. First, a lack of relevance, where students may consider the English lessons taught at school to be irrelevant to their daily lives. Second, monotonous or uninteresting teaching methods can cause students to quickly lose interest. Students may become bored and unmotivated to learn English if lessons only focus on grammar rules and traditional exercises. Third, a lack of confidence, where students who feel insecure about speaking English may avoid active participation in class. Fourth, the influence of social and cultural environments; if English is not widely used or valued in the students' environment, they may tend to ignore the importance of learning English. Fifth, motivational factors, if students do not see the long-term value or benefits of learning English, they may not be motivated to study seriously (Hidayat & Devi, 2024).

The challenges in learning English in elementary school do not only come from students, but also from various other aspects. Teachers play a very important role in English language learning because they are considered role models for students both in and outside of the classroom. There are five roles that teachers play in English language learning: controller, motivator, assessor, resource, tutor, and advisor (Jaidi et al., 2021). In addition to the role of teachers, facilities are also important and very much needed during the learning process. There are several facilities that can be used in the English teaching and learning process, such as flashcards, language learning applications, English games or quizzes, films or songs, and the internet. Inadequate facilities not only affect students but also teachers, such as hindering the English learning process (Nurhaliza et al., 2024).

English language learning today is innovation-based and diverse, grounded in IT/ICT and influenced by knowledge and technological developments (Sya et al., 2022). In this era of globalization, there are many media that can be used to improve English language skills, such as music, videos, films, and so on (Megawati et al., 2021). It turns out that technology has enormous benefits in the learning process, making lessons more effective and greatly improving learning outcomes. Varied English learning techniques can certainly attract students' interest in learning. This is a challenge for English teachers in elementary schools/MI. Teachers need to continuously develop innovations so that students can be actively involved in the learning process (Maduwu, 2016).

Along with the development of information and communication technology, interactive digital media has emerged as an innovative solution to overcome various challenges in English learning in elementary schools. Interactive digital media is a learning medium that utilizes digital technology by providing interactive features that allow students to actively participate in the learning process. This media combines various multimedia elements such as text, images, audio, video, and animation that can be accessed through digital devices such as computers, tablets, or smartphones.

The use of interactive digital media in English language learning has various advantages. First, interactive digital media allows students to learn independently at their own pace, thus accommodating the different learning styles and speeds of each student. Second, this media provides immediate feedback to students, allowing them to immediately see their learning outcomes and make improvements if necessary. Third, the use of interactive digital media can help students develop digital skills that are very important in today's technological era. Fourth, this media presents learning materials in a more interesting and enjoyable way through multimedia elements.

One interactive digital media platform that is increasingly popular in learning is Wordwall. Wordwall is an online platform that allows teachers to create various types of interactive learning activities such as quizzes, games, and exercises that can be tailored to learning needs. This platform offers a variety of attractive and easy-to-use templates, allowing teachers to quickly create interactive and enjoyable learning materials. Wordwall can also be accessed

through various digital devices, making it very flexible for use both in the classroom and for distance learning (Rodriguez-Escobar et al.,2023).

Wordwall is a learning medium that can improve students' ability to master the material (Çil, 2021). Wordwall is a website-based platform used as an interactive and fun learning medium by presenting a variety of templates such as quizzes, matching, anagrams, random words, grouping, word searches, and various other templates (Alfares, 2025). The use of Wordwall as a learning medium can make students more creative and quicker to absorb information because it is easy to learn vocabulary with the help of Wordwall (Rodriguez-Escobar et al.,2023).

Although several other gamified digital platforms, such as Quizizz and Kahoot, are also widely used in English language learning, this study specifically selected Wordwall for several reasons relevant to the elementary school context. Comparative studies such as Ibad et al. (2023) show that platforms like Kahoot, Quizizz, and Wordwall each have different strengths in supporting student learning outcomes, and the choice among them often depends on the specific learning context and objectives rather than one platform being universally superior for every setting. In the context of this study, Wordwall was considered more suitable because it provides both an interactive digital version and a printable worksheet version generated from the very same activity, which is beneficial for elementary schools with a limited number of digital devices available for students to use simultaneously. In addition, Wordwall's simple game templates, such as matching, word searches, and quizzes, are considered more

appropriate for the cognitive characteristics and attention span of elementary school students compared to more complex, competition-based platforms (Alfares, 2025; Çil, 2021).

### **B. Research Question**

Can the use of Wordwall as an interactive digital media improves elementary students' English achievement?

### **C. Research Aim**

To determine whether the use of Wordwall as interactive digital media can improve elementary students' English achievement.

### **D. Research Hypothesis**

H<sub>0</sub>: The use of Wordwall as interactive digital media does not improve elementary students' English achievement.

H<sub>1</sub>: The use of Wordwall as interactive digital media improves elementary students' English achievement.

### **E. Significance of Study**

This study is expected to provide both theoretical and practical contributions.

#### **1. Theoretical Significance**

This research is expected to enrich the existing literature on English language learning using interactive digital media, particularly Wordwall. The findings may serve as additional empirical evidence regarding the effectiveness of game-based

and technology-integrated learning in improving elementary students' English achievement.

## 2. Practical Significance

### a. For Teachers

This study can be a reference for English teachers in designing engaging and effective classroom activities using Wordwall as a learning tool to increase students' participation and learning outcomes.

### b. For Students

The use of Wordwall is expected to make learning English more enjoyable and interactive, thereby improving their learning outcomes and confidence.

### c. For Schools

The results of this study may support schools in integrating digital learning media as part of their English teaching programs to enhance overall learning quality.

### d. For Future Researchers

The study may serve as a reference or comparative source for those who wish to conduct similar studies in different educational levels, skills, or media platforms.

## F. Terminology

To avoid misunderstanding, researcher has defined the following operational definitions of this research as follow:

## 1. Wordwall

Wordwall is an interactive web-based learning platform that provides various game templates and activities designed to enhance student engagement and learning outcomes. According to Rodríguez-Escobar et al. (2023), Wordwall is a web-based platform that allows educators to design a variety of interactive activities and games, serving as tools to facilitate student engagement in the classroom. Çil (2021) defines Wordwall as a gaming platform that facilitates interactive and individualized learning through simple instructions, such as matching words to pictures or sounds and solving word puzzles. Alfares (2025) states that Wordwall provides various features such as Match Up, Open the Box, Random Cards, Anagram, Quiz, and other interactive templates that educators can use to create innovative classroom learning media. In this study, Wordwall refers to the interactive digital platform used as the primary learning medium in the experimental group, featuring activities such as quizzes, matching games, anagrams, word searches, and other gamification-based exercises.

## 2. Interactive Digital Media

Interactive digital media refers to technology-based learning tools that enable two-way communication between users and the system, providing dynamic feedback and personalized learning experiences. Listyawan et al. (2023) emphasize that interactive digital media enhances user experience and makes content more personal and relevant through its interactivity. Fitriya et al. (2024) state that interactive learning media can accommodate various

learning styles of visual, auditory, and kinesthetic students so that each student can learn in the way that suits them best. Simorangkir et al. (2024) found that interactive digital media such as PowerPoint, Educandy, and similar platforms can improve elementary school students' learning outcomes. In this research context, interactive digital media encompasses all digital learning tools, with Wordwall serving as the specific platform being investigated for its effectiveness in English language teaching.

### 3. English Achievement

English achievement refers to measurable accomplishments in students' English language proficiency following instructional activities. According to Kemdikbud (2022), learning outcomes are a reflection of students' competency achievements after participating in the learning process, which are usually measured through tests or assessments based on the Merdeka Curriculum. Yuwono and Triono (2024) add that English learning outcomes can be measured through various assessment methods that evaluate students' language competencies. In this study, English learning outcomes specifically include students' abilities in four main aspects: vocabulary mastery, basic grammar understanding, reading comprehension of simple texts, and fundamental communication skills, all measured through pre-test and post-test instruments designed according to fourth-grade elementary school English competency standards.

#### 4. Effectiveness

Effectiveness in educational research refers to the degree to which an instructional method or medium achieves its intended learning objectives. In this study, effectiveness is operationally defined as the significant improvement in students' English achievement when taught using Wordwall compared to conventional teaching methods. This effectiveness is measured through statistical comparison of post-test scores between the experimental and control groups. The concept of effectiveness in this research aligns with Alfares (2025), who examined the effectiveness of Wordwall in improving student learning outcomes by comparing pre-test and post-test results between an experimental and a control group.

#### 5. Elementary students

Elementary students in this research refer to fourth-grade students (approximately 9-10 years old) enrolled in elementary schools or Madrasah Ibtidaiyah in Banda Aceh City during the 2025/2026 academic year. According to the Indonesian education system, fourth grade marks the formal beginning of English language instruction (Maduwu, 2016). This age group is characterized by concrete operational thinking and requires engaging, visual, and interactive learning approaches to maintain attention and facilitate understanding (Sari et al., 2024). In this study, elementary students are the target population whose English achievement will be measured before and after the implementation of Wordwall as an interactive learning medium.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **A. Learning Media**

##### **1. Definition of Learning Media**

Learning media is anything used to convey information or lesson material from educators to students so that the learning process becomes more effective and efficient (Silaban & Boy, 2025). Nurfadhillah (2021) defines learning media as anything that can be used to convey messages from the sender to the receiver in such a way as to stimulate the minds, feelings, attention, and interest of students so that the learning process occurs.

With learning media, learning activities can run effectively in achieving learning objectives. Effective and innovative learning activities are needed so that students can play an active role during learning (Kurniawan et al., 2020).

##### **2. Functions of Learning Media**

According to Sapriyah (2019), there are several functions of learning media, namely: (1) communicative function, to facilitate communication between the sender and receiver of messages; (2) motivational function, to motivate students in learning; (3) meaningfulness function, to improve students' ability to analyze and create; (4) perception equalization function, to equalize the perceptions of each student; and (5) individuality function, to serve the needs of each individual who has different interests and learning styles.

Rahmawati et al. (2021) state that the function of media in the teaching and learning process is to increase student stimulation in learning activities. Learning media functions as a graphic, photographic, or electronic tool to capture, process, and reorganize visual or verbal information.

## **B. Interactive Digital Media**

### **1. Definition of Interactive Digital Media**

Interactive digital teaching media is a systematically organized digital teaching material that contains interactive multimedia such as text, images, audio, video, and simulations to achieve targeted learning objectives that can be studied independently (Batubara, 2021).

Masdar Limbong et al. (2022) define interactive digital media as a digital-based platform that allows users to interact directly with digital content or environments, providing dynamic feedback and control to users. This interactivity enables the personalization of learning experiences, increases user engagement, and strengthens the process of understanding and retaining information.

### **2. Characteristics and Benefits of Interactive Digital Media**

Sinta et al. (2024) argue that interactive digital media has important characteristics such as interactivity, multimedia, and direct feedback. Listyawan et al. (2023) emphasize that this interaction enhances the user experience and makes content more personal and relevant.

Kurniawan et al. (2023) highlight the advantages of interactive multimedia, namely: (1) a more interactive and innovative learning system; (2)

the ability to combine video, animation, music, audio, images, and text according to learning objectives; (3) increased student motivation; (4) the ability to visualize material well; and (5) training students to be more independent in acquiring knowledge.

Fitriya et al. (2024) state that interactive learning media can accommodate various learning styles of visual, auditory, and kinesthetic students so that each student can learn in the way that suits them best.

### **C. Wordwall as a Learning Medium**

#### **1. Definition of Wordwall**

Wordwall is an interactive learning medium that offers a variety of games using technology such as smartphones or laptops, which serve as tools to facilitate student activities in the classroom (Rodríguez-Escobar et al., 2023).

Alfares (2025) explains that Wordwall is a Digital Game-Based Learning (DGBL) platform specifically designed as a learning resource, learning medium, and assessment tool that is enjoyable for students. Çil (2021) defines Wordwall as a gaming platform in the form of simple games where students are asked to follow instructions and select the correct answers, such as matching words to pictures or sounds.

Wordwall is a type of gamification application that provides a variety of game options that teachers can use to convey information and material. This application was created by the British organization Visual Education Ltd.

## 2. Wordwall Features and Activities

Alfares (2025) stated that in Wordwall, educators can create innovative and creative media for classroom learning because several features are available, such as: Match Up, Open the Box, Random Cards, Anagram, Labelled Diagram, Categorize, Quiz, Find the Match, Matching Pairs, Missing Word, Wordsearch, Rank Order, Random Wheel, Group Sort, Unjumble, Gameshow Quiz, Maze Chase, and Airplane.

Çil (2021) states that Wordwall is a game-based website application that can be used as a learning tool. Wordwall media consists of several types of games that can be used, including quizzes, matching, anagrams, random words, word searches, grouping, and so on.

## 3. Advantages of Wordwall

Alfares (2025) argues that the advantages of Wordwall lie in its attractive appearance, competitive quiz format, and its ability to cater to various student learning styles. This makes Wordwall a medium that is well-suited to the characteristics of learning in the digital age.

Çil (2021) explain that one of the advantages of Wordwall is its flexibility in organizing game content according to the teacher's needs. Teachers can create exercises with different levels of difficulty. Wordwall provides a wide variety of activity formats, such as matching pairs, open the box, wheel spin, group sort, anagram, and point-based quiz variations.

Rodríguez-Escobar et al. (2023) state that the basic version of Wordwall is free and offers a variety of templates. Additionally, games created on

Wordwall can be shared directly via WhatsApp, Google Classroom, or other platforms.

#### **4. Disadvantages of Wordwall**

Besides its advantages, Wordwall also has several limitations that need to be considered. Rodríguez-Escobar et al. (2023) found that one of the main drawbacks reported by teachers is Wordwall's complete dependence on an internet connection, since the platform cannot be used offline; when the internet is unavailable or unstable, students are unable to access the activities at all. Alfares (2025) similarly notes that implementing Wordwall requires adequate technological infrastructure, including a stable internet connection and a digital device such as a computer, tablet, or smartphone for every student, which can be a significant barrier for schools with limited facilities.

In addition, the free version of Wordwall has restrictions on the number and type of activities that can be created, so teachers who need full access to all templates and features must subscribe to a paid plan (Rodríguez-Escobar et al., 2023). This dependency on internet access, digital devices, and technological infrastructure means that Wordwall is less suitable for use in schools or areas with unstable networks or limited digital facilities.

### **D. English Learning Outcomes**

#### **1. Definition of Learning Outcomes**

Scores or learning outcomes are a reflection of students' competency achievements after participating in the learning process, which are usually measured through tests or assessments based on the Merdeka Curriculum

(Kemdikbud, 2022a). Learning outcomes are also seen as indicators of improvements in students' cognitive, affective, and psychomotor abilities that emerge after learning activities (Ikawati, 2023).

## **2. Indicators of Elementary School Students' English Achievement**

Kemdikbud (2022a) states that the indicators of elementary school English achievement in the Merdeka Curriculum include the ability to understand and use simple vocabulary, respond to instructions, read short texts, and produce simple sentences both orally and in writing. Trinita (2024) adds that the achievement indicators also include basic communicative skills and mastery of thematic vocabulary appropriate to the context of elementary school students.

## **3. Types of Assessment**

In elementary school English language learning, the assessments recommended by the Merdeka Curriculum include diagnostic, formative, and summative assessments (Kemdikbud, 2022b). Diagnostic assessments are used to map students' initial abilities, formative assessments are used to provide feedback during the learning process (Nuraeni, 2022), and summative assessments are conducted at the end of learning to determine the level of student competency achievement (Yuwono & Triono, 2024).

## **E. Underlying Theories**

### **1. Cognitive Learning Theory**

Cognitive learning theory is an approach that focuses on internal processes, such as perception, attention, memory, and problem solving, to understand how information is acquired, processed, and stored (Iswahyudi et

al., 2025). Unlike behaviorist theory, cognitive theory focuses on internal mechanisms such as the processing and storage of information in long-term memory.

a. Information Processing

The learning process in cognitive theory highlights the importance of internal mental mechanisms in understanding and managing information. Learning involves active processing, in which newly received information must go through attention and perception before it can be stored in long-term memory (Sweller, 1988 in Iswahyudi et al., 2025).

Mayer (2009, in Iswahyudi et al., 2025) shows that multimedia that combines visual and auditory elements can improve information comprehension by strengthening cognitive processes. Digital technologies such as Wordwall facilitate information processing through various activity formats that activate students' attention, perception, and memory.

b. Connection with Interactive Digital Media

Technology plays an important role in supporting cognitive learning by providing tools that enrich the learning experience and facilitate information processing (Iswahyudi et al., 2025). Digital platforms provide immediate feedback and repetitive material that reinforces student understanding. The use of techniques such as chunking (grouping information) in learning software can help students manage complex information.

## 2. Constructivism Theory

Constructivism theory emphasizes that knowledge is constructed through one's own understanding via interactive and reflective learning experiences (Casfian et al., 2024). Students are active in constructing their own understanding, rather than simply receiving information from teachers. Effective learning occurs when students are actively involved in the learning process and connect new information with existing knowledge.

In the constructivism approach, teachers act as facilitators who support students in constructing their knowledge (Casfian et al., 2024). This shows that constructivist learning does not only focus on knowledge transfer, but more on the process of constructing meaningful knowledge through direct experience and active interaction.

### a. Relevance to Wordwall

E-learning, in the context of constructivism, offers a platform that supports active, collaborative, and personalized learning (Casfian et al., 2024). Digital technology facilitates a dynamic learning environment where students can manipulate information, access diverse resources, and interact with fellow students.

E-learning platforms can be customized and provide materials that can be accessed according to each student's needs, allowing them to learn at their own pace (Casfian et al., 2024). Modern learning systems can provide real-time assessment and feedback, which is very important for the constructivist

learning process because it helps students understand and correct mistakes more efficiently.

### **3. Computer-Assisted Language Learning (CALL)**

Computer-Assisted Language Learning (CALL) is language learning with the help of computers, which is a technological product that can greatly assist teachers and facilitate the learning process (Nurlaili & Hasibuan, 2021). CALL is a teaching method that has potential in language learning because, through multimedia, abstract concepts can be presented more realistically in the learning process to make it easier for students to understand.

#### **a. The Role of CALL in English Language Learning**

The CALL method, which uses technological media, greatly stimulates students' desire to speak, and students can see examples of native speakers speaking directly, so that the learning atmosphere is not monotonous and intimidating for students but is very enjoyable (Nurlaili & Hasibuan, 2021).

For teachers, the role of CALL is quite helpful, especially in realizing effective teaching and meaningful learning that refers to the 5Cs (Communication, Collaboration, Critical Thinking, Creativity, and Characters) (Dangin, 2021). Technology will expand the limitations of teachers and students in accessing materials and create an interactive, learner-centered, open, and flexible online learning environment.

#### **b. Wordwall as Part of CALL**

Interactive digital platforms such as Wordwall are an integral part of CALL implementation in English language learning. The use of digital media

in education has been linked to increased learning motivation, where attractive multimedia features and high interactivity can make the learning process more interesting (Casfian et al., 2024).

Uktolseja et al. (2025) state that interactive digital media provides a fun and dynamic learning experience, which can increase student engagement in the learning and assessment process. The implementation of interactive digital platforms as an evaluation medium is an effective, enjoyable, and relevant strategy in supporting the English language learning process.

## **F. Previous Relevant Research**

### **1. Research on Wordwall**

Çil (2021) conducted an experimental study on the effect of using Wordwall.net on the vocabulary knowledge of fifth-grade EFL students in Turkey, using an experimental group and a control group. The results showed a significant improvement in each group's own pre-test and post-test scores after using Wordwall. The relevance to this study is that both use Wordwall as a medium for English language learning at a comparable education level. The difference is that this study uses a quasi-experimental design with a nonequivalent control group at the elementary school level in Indonesia.

Alfares (2025) conducted a quasi-experimental study on the effectiveness of the Wordwall platform in enhancing vocabulary learning among Saudi EFL secondary school students, comparing an experimental group that used Wordwall with a control group taught through traditional methods. The results showed a significant improvement in the experimental group's post-test scores.

The difference with this study is the education level and the cultural/linguistic context of the participants, since it involved Saudi secondary students learning English as a foreign language rather than elementary school students in Indonesia.

## **2. Research on Gamification**

Efendi and Amri (2023) conducted experimental research on the effect of gamification in learning on improving high school students' learning outcomes. The results show that the gamification approach can improve student learning outcomes. The relevance is the use of the gamification approach through digital media. The difference is that this study specifically uses Wordwall at the elementary school level.

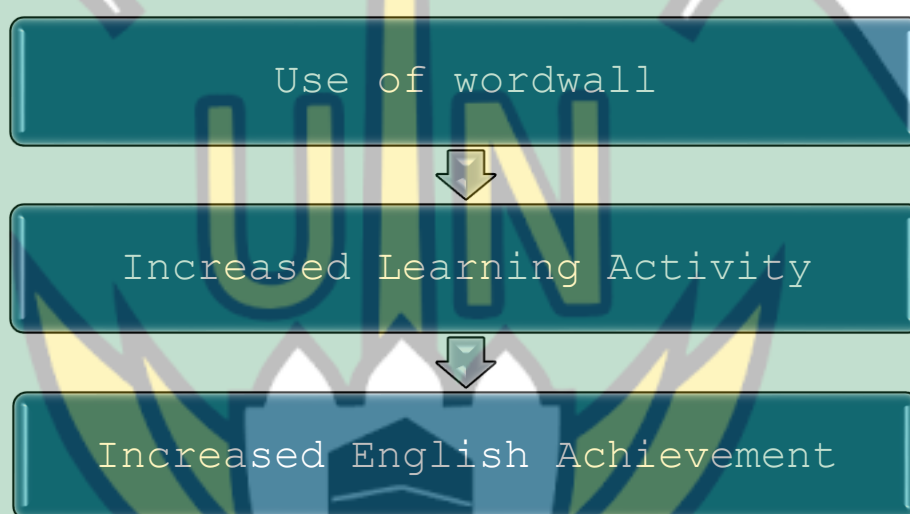
## **3. Research on Interactive Digital Media in Elementary Schools**

Simorangkir et al. (2024) conducted a literature study on the use of interactive learning media that affects elementary school students' learning outcomes in mathematics. The results showed that interactive digital media such as PowerPoint, Educandy, and PowToon can improve elementary school students' learning outcomes. The relevance is the use of interactive digital media at the elementary school level. The difference is that this study used a quasi-experimental design with a focus on Wordwall in English learning.

## G. Conceptual Framework

### 1. Interrelationship between Variables

This study is based on a conceptual framework that links the use of Wordwall with an increase in elementary school students' English achievement. The interrelationship between variables is as follows:



Wordwall is an interactive gamified digital media that provides an engaging and enjoyable learning experience for students. Based on cognitivism theory, digital media that combines visual and auditory elements can improve students' information processing (Iswahyudi et al., 2025).

From a constructivist perspective, Wordwall allows students to actively construct their own knowledge through interaction with learning content (Casfian et al., 2024). Interactive activities in Wordwall encourage students to actively participate, explore the material, and receive immediate feedback.

In the context of CALL, Wordwall provides an interactive and personalized language learning environment (Dangin, 2021; Nurlaili &

Hasibuan, 2021). This platform allows students to practice vocabulary, sentence structure, and English concepts in an engaging format. Real-time feedback helps students immediately identify and correct their mistakes.

## **2. Rationale for Choosing Wordwall**

Wordwall should be tested for effectiveness based on:

- a. **Elementary School Student Characteristics:** Elementary school students need a concrete, visual, and engaging learning approach. Wordwall provides a suitable learning experience through interactive and game-based displays.
- b. **Theoretical Support:** The use of Wordwall is supported by cognitivism, constructivism, and CALL theories, which demonstrate the effectiveness of technology in learning.
- c. **Flexibility:** Wordwall can be tailored to learning needs and is easily accessible through various devices.
- d. **Alignment with the Merdeka Curriculum:** Wordwall supports student-centered learning, differentiated learning, and the use of technology.

## **3. Operational Definition of Variables**

- a. **Independent Variable (X): Use of Wordwall Media**

Wordwall is a web-based application that provides various interactive educational game templates such as quizzes, matching, anagrams, word searches, and various other gamification activities (Rodríguez-Escobar et al., 2023; Alfares, 2025; Çil, 2021). Wordwall has the following characteristics: interactive digital platform, various game templates, gamification elements,

accessible on various devices, provides immediate feedback, and supports multisensory learning.

b. Dependent Variable (Y): Students' English Achievement

English achievement a reflection of students' competency achievements after participating in the learning process (Kemdikbud, 2022a), including: the ability to understand simple vocabulary, respond to instructions, read short texts, produce simple sentences, basic communicative skills, and mastery of thematic vocabulary. These are measured through pre-tests and post-tests to determine changes or improvements.



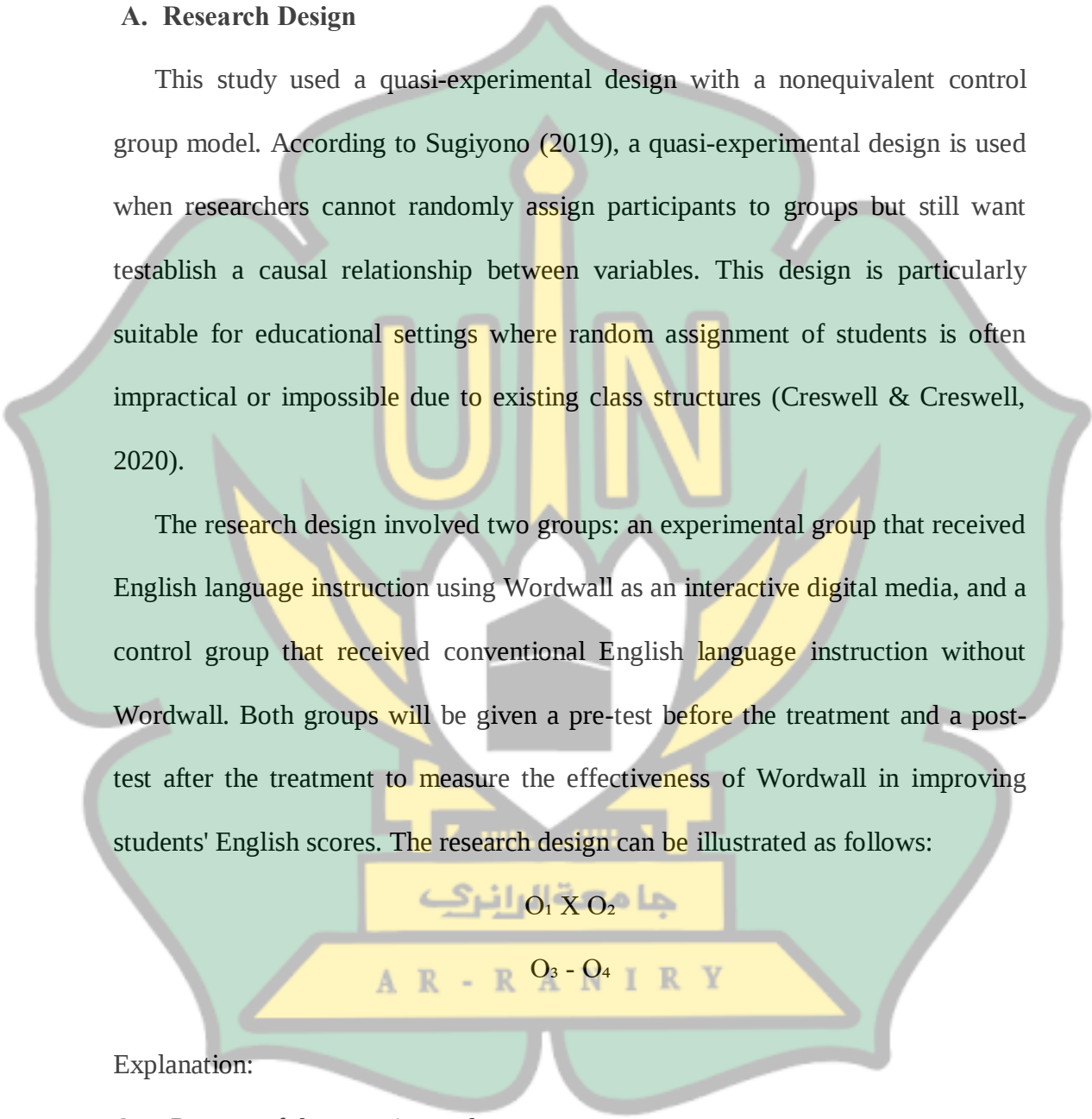
## CHAPTER III

### RESEARCH METHODOLOGY

#### A. Research Design

This study used a quasi-experimental design with a nonequivalent control group model. According to Sugiyono (2019), a quasi-experimental design is used when researchers cannot randomly assign participants to groups but still want to establish a causal relationship between variables. This design is particularly suitable for educational settings where random assignment of students is often impractical or impossible due to existing class structures (Creswell & Creswell, 2020).

The research design involved two groups: an experimental group that received English language instruction using Wordwall as an interactive digital media, and a control group that received conventional English language instruction without Wordwall. Both groups will be given a pre-test before the treatment and a post-test after the treatment to measure the effectiveness of Wordwall in improving students' English scores. The research design can be illustrated as follows:


$$\begin{array}{c} O_1 \times O_2 \\ O_3 - O_4 \end{array}$$

Explanation:

$O_1$  = Pre-test of the experimental group

$O_2$  = Post-test of the experimental group

$O_3$  = Pre-test of the control group

$O_4$  = Post-test of the control group

X = Treatment using Wordwall

- = Conventional learning method

## **B. Population and Sample**

### **1. Population**

According to Sugiyono (2019), a population is the scope of generalization consisting of objects or subjects that possess certain qualities and characteristics defined by the researcher for study, from which conclusions are subsequently drawn. The population in this study consists of all fourth-grade students at MIN 20 Aceh Besar, Aceh Besar Regency, for the 2025/2026 school year, comprising several parallel classes with a total of 167 students.

### **2. Sample**

A sample is a subset of a population that shares the same characteristics as that population (Sugiyono, 2019). This study employed purposive sampling, a technique for selecting a sample based on specific criteria aligned with the study's objectives (Hardani et al., 2020).

From among the available fourth-grade parallel classes, Class IV-Digital was selected as the experimental class and Class IV-3 as the control class. Both classes were selected based on the following considerations: (1) relatively equivalent average English proficiency levels based on previous semester grades; (2) instruction by the same English teacher, thereby minimizing the influence of teacher variation; and (3) the same weekly English class schedule. These three factors of equivalence serve as the basis for concluding with greater certainty that

any differences in learning outcomes are due to the implementation of Wordwall, rather than to factors such as the teacher, the schedule, or students' initial proficiency levels.

Meanwhile, the decision regarding which class would serve as the experimental group and which as the control group was based on the availability of technological resources. Class IV-Digital was selected as the experimental class because the students in this class own and are accustomed to bringing laptops to school and have adequate internet access, allowing for the individual use of Wordwall in accordance with the research design. In contrast, Class IV-3 did not have equivalent laptop facilities and internet access, so this class was selected as the control group, which participated in English language instruction using the methods and media typically employed by the teacher, without the use of Wordwall. It should be emphasized that the Grade 4 Digital Class is not a class formed based on students' academic ability, but rather on their interest and readiness to participate in digital-based learning; therefore, the students in this class still have a diverse range of ability levels including high, moderate, and those who still need additional support.

The initial population of students enrolled in the two classes consisted of 19 students in Class IV-Digital and 38 students in Class IV-3. However, the final sample used in the data analysis consisted of only 14 students from Class IV-Digital and 25 students from Class IV-3 (a total of 39 students). This reduction in the number of students was due to the application of data completeness criteria, namely that only students who were present for all stages of the study the pretest,

treatment, and posttest were included in the analysis. Students who were absent from any of these stages were excluded from the final sample so that the data being compared would truly reflect changes in the learning outcomes of the same individuals from the beginning to the end of the study.

Although the final sample size of 39 students represents only about 23% of the total population of 167 fourth-grade students, this proportion was deemed adequate for a quasi-experimental research design and was not intended to be a proportional representation of the population. The determination of the final sample size resulted from the data completeness criteria applied consistently to both groups; specifically, only students who were present at all stages of the study (pretest, treatment, and posttest) were included in the analysis, as explained in the previous paragraph. The experimental group in this study consisted of 14 students, while the control group consisted of 25 students. This difference in numbers was due to the fact that Class IV-Digital had fewer students from the outset (19 students enrolled) compared to Class IV-3 (38 students enrolled), so it was only natural that the number of students who met the attendance criteria would also be smaller. Both groups were retained in this study because they met the criteria for equivalence as described earlier (same teacher, schedule, and initial ability), ensuring that the comparison of learning outcomes between the groups remains methodologically sound.

The reason only two classes were selected from the several parallel classes available rather than a majority of the 167 students is that this study employed a purposive sampling technique based on specific equity criteria, rather than

random sampling from the entire population (Sugiyono, 2019). If additional parallel classes taught by different teachers, with different schedules, or with unequal facilities are included, this could potentially introduce extraneous variables that might threaten the internal validity of the experiment. Therefore, only the two classes that were most comparable in terms of initial ability, teachers, and schedules were selected as the research sample.

### **C. Research Location and Time**

#### **1. Research Location**

This study will be conducted at MIN 20 Aceh Besar, Aceh Besar Regency, Aceh Province.

#### **2. Research Time**

The study will be conducted during the even semester of the 2025/2026 academic year. The study will take approximately 6–8 weeks, beginning with obtaining research permits, coordinating with the school, developing and validating the instruments, administering the pre-test, implementing the intervention using Wordwall, administering the post-test, and concluding with data collection and analysis. The intervention will be carried out in accordance with the English class schedule established by the school. The complete research schedule is as follows:

Table 3.1 Research Procedure

| No | Activity                                  |
|----|-------------------------------------------|
| 1. | Preparation and approval of proposal      |
| 2. | Preparation and validation of instruments |
| 3. | Implementantion of pre-test               |
| 4. | Implementantion of Treatment              |
| 5. | Implementantion of post-test              |
| 6. | Data analysis and interpretation          |
| 7. | Writing and revising                      |

#### D. Research Instruments

##### 1. Test Instruments

The test instrument is designed to measure students' English proficiency on the topic of daily routines, which includes vocabulary mastery and comprehension of simple sentence structures. The test consists of 20 items, as detailed below:

Table 3.2 Blueprint of the Research Instrument

| No    | Aspect             | Measured Aspects                                                                 | Number of items | Percentage |
|-------|--------------------|----------------------------------------------------------------------------------|-----------------|------------|
| 1.    | Multiple Choice    | Simple vocabulary and grammar (simple present tense related to daily routines)   | 10              | 50%        |
| 2.    | Matching           | Vocabulary comprehension (matching English terms with their Indonesian meanings) | 5               | 25%        |
| 3.    | Fill in the Blanks | Using Vocabulary in Sentences                                                    | 5               | 25%        |
| Total |                    |                                                                                  | 20              | 100%       |

The same test will be used for the pre-test and post-test to ensure consistency in measurement before and after the treatment.

## 2. Validity and Reliability of the Instrument

### a. Validity Test

The validity of the instrument was tested using the Pearson product-moment correlation technique, which involves correlating the score for each item with the total score. The validity test was conducted on data obtained from 57 students who served as the research sample. An item was deemed valid if the significance value (Sig., 2-tailed) was less than 0.05. The complete results of the validity test are presented in the following table:

Table 3.3 Item Validity Test Results

| No  | Item | Calculated r | Table r | Decision |
|-----|------|--------------|---------|----------|
| 1.  | Q1   | 0,660        | 0,261   | Valid    |
| 2.  | Q2   | 0,595        | 0,261   | Valid    |
| 3.  | Q3   | 0,123        | 0,261   | Invalid  |
| 4.  | Q4   | 0,521        | 0,261   | Valid    |
| 5.  | Q5   | 0,355        | 0,261   | Valid    |
| 6.  | Q6   | 0,648        | 0,261   | Valid    |
| 7.  | Q7   | 0,737        | 0,261   | Valid    |
| 8.  | Q8   | 0,553        | 0,261   | Valid    |
| 9.  | Q9   | 0,445        | 0,261   | Valid    |
| 10. | Q10  | 0,654        | 0,261   | Valid    |

|     |     |       |       |       |
|-----|-----|-------|-------|-------|
| 11. | Q11 | 0,750 | 0,261 | Valid |
| 12. | Q12 | 0,693 | 0,261 | Valid |
| 13. | Q13 | 0,700 | 0,261 | Valid |
| 14. | Q14 | 0,606 | 0,261 | Valid |
| 15. | Q15 | 0,666 | 0,261 | Valid |
| 16. | Q16 | 0,602 | 0,261 | Valid |
| 17. | Q17 | 0,562 | 0,261 | Valid |
| 18. | Q18 | 0,490 | 0,261 | Valid |
| 19. | Q19 | 0,379 | 0,261 | Valid |
| 20. | Q20 | 0,540 | 0,261 | Valid |

Based on the results of the validity test using Pearson's product-moment correlation on 57 respondents ( $N = 57$ ) with a critical value of 0.261 at a 5% significance level, it was found that 19 items were deemed valid because their calculated  $r$  values were greater than the critical value, while 1 item, namely P3, was deemed invalid because its calculated  $r$  value of 0.123 was less than 0.261. Thus, the research instrument used consists of 19 valid items.

#### b. Reliability Test

The reliability of the instrument was tested using Cronbach's Alpha to measure the internal consistency of all test items based on data from a sample of 57 students. The results of the reliability test are presented in the following table:

Table 3.4 Reliability Test Result

| Cronbach's Alpha | N of Items |
|------------------|------------|
| 0,889            | 20         |

Based on the analysis results, a Cronbach's Alpha value of 0.889 was obtained for the 20 test items. According to Sugiyono's (2019) criteria, this value falls into the "very high reliability" category ( $>0.80$ ); therefore, the test instrument is deemed reliable and suitable for use as a measurement tool in this study.

#### **E. Data Collection Techniques**

To obtain valid and reliable data, this study used achievement tests as the main data collection technique:

##### **1. Tests**

According to Arikunto (2021), tests are a series of questions or exercises used to measure the skills, knowledge, intelligence, abilities, or talents possessed by individuals or groups. This study uses achievement tests in the form of pre-tests and post-tests to measure students' English learning outcomes. The tests are designed based on the English learning indicators for fourth-grade elementary school students in accordance with the Merdeka Curriculum, which includes the ability to understand simple vocabulary, respond to instructions, read short texts, and produce simple sentences (Kemdikbud, 2022a).

The tests consist of multiple-choice questions, matching questions, and simple writing tasks covering vocabulary, grammar, reading comprehension, and

basic communication skills. The same test instruments will be used for the pre-test and post-test to ensure measurement consistency. The tests will be validated by experts and piloted before being used in the actual research.

## **F. Data Analysis Techniques**

Data collected from tests will be analyzed using descriptive and inferential statistics with the help of SPSS software.

### **1. Descriptive Statistics**

Descriptive statistics are used to describe the characteristics of the collected data, including the mean, median, mode, standard deviation, minimum and maximum values, and frequency distribution (Sugiyono, 2019). Descriptive analysis will be performed on the pre-test and post-test scores for both the experimental and control groups.

### **2. Prerequisite Tests**

Before testing the hypothesis, prerequisite tests need to be performed to ensure that the data meets the assumptions required for parametric statistical tests (Ghozali, 2021):

- a. Normality Test: This study uses the Kolmogorov-Smirnov test with a significance level of 0.05. The data is considered normally distributed if the significance value (p-value) is greater than 0.05 (Ghozali, 2021). A normality test was conducted using the Shapiro–Wilk test. The test was performed on each research group (the experimental group and the control group) to determine whether the data were normally distributed. The data were

considered normally distributed if the significance value (Sig.) was greater than 0.05.

- b. Homogeneity Test: A homogeneity test is conducted to determine whether the variance of two or more groups is homogeneous. This study uses the Levene test with a significance level of 0.05. The data is considered homogeneous if the significance value (p-value) is greater than 0.05 (Santoso, 2020).

### 3. Hypothesis Testing

Hypothesis testing is conducted to test the research hypothesis. The statistical test used :

- a. Paired-Sample t-Test: used to test the differences in pre-test and post-test scores for each group (the experimental group and the control group) separately, to determine whether there was a significant improvement in each group following the instruction.
- b. Independent Sample t-test: This test is used to test the hypothesis regarding the difference in English achievement between the experimental and control groups. This test compares the average post-test scores of the two groups. If the data meets the assumptions of normality and homogeneity, the parametric independent sample t-test will be used. If the assumptions are not met, the non-parametric Mann-Whitney U test will be used instead (Santoso, 2020).

The criteria for deciding on the hypothesis are:

If the  $p\text{-value} < 0.05$ , then  $H_0$  is rejected and  $H_1$  is accepted, meaning that there is a significant difference.

If the  $p$ -value  $> 0.05$ , then  $H_0$  is accepted and  $H_1$  is rejected, meaning there is no significant difference.

- c. Mann–Whitney U Test : If the results of the normality test indicate that the data are not normally distributed, then the independent samples t-test cannot be used. As an alternative, the Mann–Whitney U test is used, which is a nonparametric test for comparing two independent groups. The basis for decision-making is as follows:

If the Asymp. Sig. (2-tailed) value is  $< 0.05$ , there is a significant difference between the two groups.

If the Asymp. Sig. (2-tailed) value is  $> 0.05$ , there is no significant difference between the two groups.



## CHAPTER IV

### RESEARCH FINDINGS AND DISCUSSION

This chapter presents the results of a study on the use of Wordwall as an interactive digital medium to improve the English language learning outcomes of fourth-grade students at MIN 20 Aceh Besar. Research data were collected through pre-tests and post-tests administered to the experimental group (Grade 4-Digital), which received instruction using Wordwall, and the control group (Grade 4-3), which received conventional instruction. Based on the data completeness criteria described in Chapter III, the final sample analyzed consisted of 14 students in the experimental group and 25 students in the control group (a total of 39 students). This chapter consists of three main sections, namely: (A) Data Description, which presents the pre-test and post-test data for both groups; (B) Data Analysis, which presents the results of the prerequisite tests and hypothesis tests using IBM SPSS Statistics version 26; and (C) Discussion, which interprets the research findings in relation to the research questions, hypotheses, and theories outlined in Chapter II.

#### A. Data Description

As explained in Chapter III, this study employed a quasi-experimental design with a nonequivalent control group model. Both groups were administered the same test instrument, namely a test measuring mastery of vocabulary and simple sentence structures on the topic of daily routines, consisting of 20 items; following a validity test, 19 items were deemed valid and were used in the study.

A pre-test was administered before the intervention to assess students' initial English proficiency, while a post-test was administered after the intervention to assess students' English proficiency following the instruction. The experimental group received instruction using Wordwall as an interactive digital medium, while the control group received conventional instruction without Wordwall.

Pre-test and post-test data from 14 students in the experimental group and 25 students in the control group who met the data completeness criteria were analyzed using IBM SPSS Statistics version 26. A summary of the descriptive statistics for both groups is presented in Table 4.1 below.

Table 4.1 Descriptive Statistics of Pre-test and Post-test Scores

| Group                           | Test      | N  | Mean  | Std. Deviation | Minimum | Maximum |
|---------------------------------|-----------|----|-------|----------------|---------|---------|
| Experimental (Class IV-Digital) | Pre-test  | 14 | 59.64 | 23,896         | -       | -       |
| Experimental (Class IV-Digital) | Post-test | 14 | 77,86 | 23,346         | 25      | 95      |
| Control (Class IV-3)            | Pre-test  | 25 | 54,00 | 19,843         | -       | -       |
| Control (Class IV-3)            | Post-test | 25 | 63,00 | 19,843         | 40      | 95      |

Table 4.1 shows that the average score of the experimental group increased from 59.64 on the pre-test to 77.86 on the post-test, an increase of 18.22 points. The average score of the control group also increased, from 54.00 to 63.00, an increase of 9.00 points. This descriptive comparison shows that the increase in the average score in the experimental group, which was taught using Wordwall, was greater than the increase in the control group, which was taught using conventional methods.

It should be noted that the number of students in the experimental group (14 students) was smaller than that in the control group (25 students). In addition to the fact that the initial number of students in Class IV-Digital was indeed smaller (19 students) than that in Class IV-3 (38 students), the reduction in the final sample size in both groups was also due to the application of data completeness criteria. That is, only students who participated in all stages of the study (pre-test, treatment, and post-test) were included in the analysis, as explained in Chapter III.

To examine the differences in the magnitude of improvement (gain) between each student's post-test and pre-test scores, gain scores were calculated as the basis for further statistical analysis. Descriptive statistics for the gain scores of the two groups are presented in Table 4.2.

Table 4.2 Descriptive Statistics of Gain (Difference) Scores

| Group                           | N  | Mean Gain | Std. Deviation | Minimum | Maximum |
|---------------------------------|----|-----------|----------------|---------|---------|
| Experimental (Class IV-Digital) | 14 | 18,21     | 15,141         | 0       | 55      |
| Control (Class IV-3)            | 25 | 9,00      | 8,165          | -5      | 30      |

Table 4.2 confirms that, on average, students in the experimental group showed a considerably higher gain in their English scores ( $M = 18.42$ ) than students in the control group ( $M = 1.71$ ). However, the standard deviation of the gain score in the experimental group (40.827) is also relatively large, indicating substantial variation in individual improvement within that group.

### 1. KKM Achievement on Post-test Scores

To determine the extent to which students in each group met the Minimum Proficiency Criteria (KKM) for English at the school set at 75 the post-test scores of each student in the experimental and control groups were compared to that threshold. A student was categorized as having met the KKM if their post-test score was equal to or greater than 75. The results of this comparison are presented in Table 4.3.

Table 4.3 Number and Percentage of Students Achieving the School's KKM ( $\geq 75$ ) in the Post-test

| Group                           | N  | Achieved KKM ( $\geq 75$ ) | Percentage (%) | Not Achieved KKM | Percentage (%) |
|---------------------------------|----|----------------------------|----------------|------------------|----------------|
| Experimental (Class IV-Digital) | 14 | 11                         | 78,57          | 3                | 21,43          |
| Control (Class IV-3)            | 25 | 9                          | 36,00          | 16               | 64,00          |

Table 4.3 shows that in the experimental group, 11 out of 14 students (78.57%) achieved the minimum passing score on the post-test, while 3 students (21.43%) did not achieve the minimum passing score. In the control group, only 9 out of 25 students (36.00%) met the passing score, while 16 students (64.00%) did not meet the passing score. This comparison shows that the proportion of students who achieved the minimum proficiency level in the experimental group was significantly higher than in the control group, which reinforces the descriptive

finding that learning with Wordwall contributes to better English learning outcomes for students.

## B. Data Analysis

Before testing the hypotheses, prerequisite tests (normality and homogeneity) were first conducted, followed by a paired-sample t-test, an independent-sample t-test, and a Mann-Whitney U test, in accordance with the data analysis techniques described in Chapter III

### 1. Normality Test of Gain Scores

A normality test was conducted on the data representing the difference (gain) between pre-test and post-test scores using the Shapiro-Wilk test at a significance level of 0.05. The data were considered normally distributed if the p-value was greater than 0.05. The results of the normality test are presented in Table 4.4.

Table 4.4 Normality Test of Gain Scores

| Group                           | Shapiro-Wilk Test | df | Sig   |
|---------------------------------|-------------------|----|-------|
| Experimental (Class IV-Digital) | 0,904             | 14 | 0,130 |
| Control (Class IV-3)            | 0,941             | 25 | 0,152 |

Based on Table 4.4, the Shapiro-Wilk significance values for the difference in scores between the experimental group and the control group were 0.130 ( $p > 0.05$ ) and 0.152 ( $p > 0.05$ ), respectively. Since both significance values are greater than 0.05,  $H_0$  is accepted and  $H_1$  is rejected; therefore, it can be

concluded that the data on the differences between pre-test and post-test scores in both groups are normally distributed. Consequently, the analysis can proceed using parametric tests, namely the paired-sample t-test and the independent-sample t-test.

## 2. Paired-Sample T-Test

A paired-sample t-test was used to determine whether there was a significant difference between the pre-test and post-test scores in each group. The test results are presented in Table 4.5.

Table 4.5 Results of the Paired-Sample T-Test

| Group                           | Mean Pre/Post | Mean Difference | Std. Deviation | Std. Error Mean | t      | df | Sig. (2-tailed) |
|---------------------------------|---------------|-----------------|----------------|-----------------|--------|----|-----------------|
| Experimental (Class IV-Digital) | 59,64 → 77,86 | -18,214         | 15,141         | 4,047           | -4,501 | 13 | 0,001           |
| Control (Class IV-3)            | 54,00 → 63,00 | -9,000          | 8,165          | 1,633           | -5,511 | 24 | 0,000           |

The results of the paired-sample t-test for the experimental group showed a significance value (Sig., 2-tailed) of 0.001 ( $p < 0.05$ ), so  $H_0$  was rejected and  $H_1$  was accepted. This means there is a significant difference between the pre-test and post-test scores in the experimental group after instruction using Wordwall. Similarly, in the control group, the test results showed a significance value of 0.000 ( $p < 0.05$ ), so  $H_0$  was also rejected and  $H_1$  accepted, meaning there was a significant difference between the pre-test and post-test scores in the control group. Thus, both groups showed a significant improvement in English

proficiency after the instruction, whether they used Wordwall or the conventional method.

### 3. Homogeneity Test and Independent-Sample t-Test (Difference Scores)

To test whether there was a significant difference in the magnitude of the gain between the experimental group and the control group, an independent-samples t-test was conducted. Before conducting this test, a test of homogeneity of variances was first performed using Levene's test. The results of the homogeneity test showed an F-value of 5.976 with a significance level of 0.019 ( $p < 0.05$ ), so it can be concluded that the variances of the difference data in the experimental and control groups are not homogeneous. Therefore, the results of the independent-sample t-test were interpreted based on the "Equal variances not assumed" row, as shown in Table 4.6.

Table 4.6 Results of the Independent-Sample T-Test on the Difference Scores (Gain)

|                                      | Levene's Test (F / Sig.) | t      | df     | Sig. (2-tailed) |
|--------------------------------------|--------------------------|--------|--------|-----------------|
| (Gain) – Equal variances not assumed | F = 5,976 Sig. = 0,019   | -2,112 | 17,330 | 0,053           |

The results of the independent-sample t-test on the difference scores showed a significance value (2-tailed Sig.) of 0.053. Since this significance value is greater than 0.05,  $H_0$  is accepted and  $H_1$  is rejected, meaning that the difference in the mean gain between the experimental group (18.21) and the control group (9.00) does not reach the conventional level of significance when tested with this test, even though the significance value is very close to the 0.05 threshold.

#### 4. Tests of Normality and Homogeneity of Post-test Data

Before comparing the post-test scores between the experimental group and the control group, a normality test was first conducted on the post-test data for each group. The results of the normality test are presented in Table 4.7.

Table 4.7 *Results of the Post-test Data Normality Test*

| Group                           | Shapiro-Wilk Test | Sig.  |
|---------------------------------|-------------------|-------|
| Control (Class IV-3)            | 0,901             | 0,117 |
| Experimental (Class IV-Digital) | 0,732             | 0,001 |

Based on Table 4.7, the Shapiro-Wilk significance value for the control group's post-test data was 0.117 ( $p > 0.05$ ), indicating that the control group's post-test data are normally distributed. Meanwhile, the Shapiro-Wilk significance value for the experimental group's post-test data was 0.001 ( $p < 0.05$ ), indicating that the experimental group's post-test data are not normally distributed. Because one of the post-test data sets was not normally distributed, in accordance with the criteria described in Chapter III, the parametric independent-sample t-test could not be used to compare the post-test scores of the two groups; therefore, the nonparametric Mann-Whitney U test was used as an alternative.

As a supplement, the test of homogeneity of variances (Levene's Test) on the post-test data yielded an F-value of 0.063 with a significance level of 0.803 ( $p > 0.05$ ), indicating that the variances of the post-test data for both groups are homogeneous. Nevertheless, because the post-test data for the experimental group

were not normally distributed, the Mann-Whitney U test was still used to test the main hypothesis.

### 5. Mann-Whitney U Test (Post-test Scores)

The Mann-Whitney U test was used to determine whether there was a significant difference in post-test scores between the experimental group and the control group. The test results are presented in Table 4.8

Table 4.8 Ranks from the Mann-Whitney U Test on Post-test Scores

|                 | Group                | N  | Mean Rank | Sum of Ranks |
|-----------------|----------------------|----|-----------|--------------|
| Post-test Score | Control              | 25 | 17,12     | 428,00       |
|                 | Experiment (Digital) | 14 | 25,14     | 352,00       |

Table 4.9 Test Statistics Mann-Whitney U Test on Post-test Scores

| Test Statistics        | Post-test Score |
|------------------------|-----------------|
| Mann-Whitney U         | 103,000         |
| Wilcoxon W             | 428,000         |
| Z                      | -2,121          |
| Asymp. Sig. (2-tailed) | 0,034           |

Based on the results of the Mann-Whitney U test, the Asymp. Sig. (2-tailed) value was 0.034. Since this significance value is less than 0.05, H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. Thus, there is a significant difference between the post-test scores of the experimental group and the control group. Based on the

mean rank, the experimental group (Digital Class) had a mean rank of 25.14, which was higher than that of the control group, which was only 17.12. This indicates that the post-test scores of the experimental group tended to be higher than those of the control group.

## 6. Summary of Hypothesis Testing

Referring to the research hypotheses formulated in Chapter I:

**H<sub>0</sub>:** The use of Wordwall as an interactive digital tool does not improve elementary school students' English learning outcomes.

**H<sub>1</sub>:** The use of Wordwall as an interactive digital tool improves elementary school students' English language learning outcomes.

Since the primary comparison of English proficiency between the two groups namely, the post-test scores was tested using the Mann-Whitney U test (the appropriate test given that the experimental group's post-test data were not normally distributed) and yielded a significance value of 0.034 ( $p < 0.05$ ), it can be concluded that H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. There was a statistically significant difference in English proficiency between students taught using Wordwall and those taught using conventional methods, with the experimental group (Wordwall) achieving higher post-test scores.

## C. Discussion

The findings of this study provide empirical evidence regarding the effectiveness of Wordwall as an interactive digital medium in improving the English proficiency of fourth-grade students at MIN 20 Aceh Besar. The

following discussion interprets these findings in relation to the research question, the underlying theory, and relevant studies described in Chapter II.

First, the descriptive data show that the average score of the experimental group increased significantly from 59.64 to 77.86 (an increase of 18.22 points) after the implementation of Wordwall, while the average score of the control group increased only from 54.00 to 63.00 (an increase of 9.00 points). The results of the paired-sample t-test showed that the improvements in both groups were statistically significant (Sig. = 0.001 for the experimental group and Sig. = 0.000 for the control group), indicating that both learning methods were equally effective in improving students' English proficiency over time. However, the magnitude of the improvement in the experimental group was significantly higher than that in the control group. These findings are also consistent with the data on minimum passing scores (KKM) in Table 4.3, which show that 78.57% of students in the experimental group achieved the minimum passing score ( $\geq 75$ ) on the post-test a significantly higher percentage than the control group, which achieved only 36.00%. These findings are consistent with those of Alfares (2025) and Rodríguez-Escobar et al. (2023), who found that Wordwall, as a digital game-based learning platform, effectively improves student learning outcomes because it provides interactive, competitive, and enjoyable learning activities that motivate students to engage more actively with the learning material.

Second, a comparison between the groups using the Mann-Whitney U test revealed a statistically significant difference in post-test scores between the experimental group and the control group (Asymp. Sig. = 0.034 < 0.05), with the

experimental group achieving a significantly higher mean rank (25.14) than the control group (17.12). These results support the research hypothesis (H1) and confirm that Wordwall, as an interactive digital medium, is more effective in improving students' English proficiency than the conventional teaching method used in the control group. These findings support the theoretical perspectives of Çil (2021) and Sinta et al. (2024), who argue that interactivity, immediate feedback, and multimedia elements in interactive digital media enhance student engagement and promote better learning outcomes compared to conventional, less interactive methods.

Third, although the independent-sample t-test of the difference (gain) in scores between the two groups did not reach the conventional level of significance (Sig. = 0.053,  $p > 0.05$ ), this value is very close to the 0.05 threshold, and descriptively, the magnitude of the increase in the experimental group (18.21) remains significantly greater than that of the control group (9.00). These results should be interpreted with caution and should not be automatically taken as evidence that Wordwall is ineffective. The relatively small sample size of the experimental group ( $n = 14$ ) may reduce the statistical power of the independent-sample t-test, while the heterogeneity of the variances in the score differences between the two groups (Levene's Sig. = 0.019) also influenced the results of this test. This finding is consistent with the views of Gall et al. (1996) and Cohen et al. (2018), who state that small sample sizes can limit the power of parametric statistical tests in detecting effects that actually exist.

Fourth, there was a difference in results between the independent-sample t-test on the difference scores (Sig. = 0.053, not significant) and the Mann-Whitney U test on the post-test scores (Sig. = 0.034, significant). This difference can be explained by the differences in the variables being compared: the difference score analysis measures the magnitude of improvement relative to each student's pre-test score, which is highly sensitive to individual variation, whereas the comparison of post-test scores measures the final level of English proficiency achieved by each group after the intervention, which directly reflects the results as formulated in the operational definition of "effectiveness" in Chapter I, namely, an improvement in students' English proficiency as measured by a statistical comparison of post-test scores between the experimental and control groups. Since the comparison of post-test scores is the analysis most consistent with the research question and operational definitions in Chapter I, the results of this test serve as the primary basis for drawing conclusions regarding the testing of hypotheses in this study.

Fifth, these findings are consistent with the theory outlined in Chapter II, particularly the view that interactive digital media can accommodate various learning styles, provide immediate feedback, and enhance students' motivation to learn (Kurniawan et al., 2023; Fitriya et al., 2024). These findings also support previous relevant research, such as that by Efendi and Amri (2023), who found that Wordwall quizzes improve students' vocabulary mastery, as well as that by Simorangkir et al. (2024), who reported that interactive digital media improves elementary school students' learning outcomes in other subjects. The findings of

this study expand on this evidence in the context of English language learning for fourth-grade elementary school students in Banda Aceh, an EFL context that has yet to be extensively studied empirically.

Sixth, there are a number of limitations that should be taken into account when interpreting these findings. The two groups were not selected randomly, but rather through purposive sampling based on equivalence in baseline achievement, teachers, schedules, and facilities (see Chapter III), which is a common and reasonable approach in quasi-experimental research in classroom settings. However, it does not entirely rule out the possibility of initial differences between the groups, as reflected in the difference in the pre-test mean scores of the two groups (59.64 for the experimental group and 54.00 for the control group). In addition, the final sample sizes of the two groups were unbalanced (14 versus 25 students) partly due to the application of attendance completeness criteria at all stages of the study which also affected the statistical power of several analyses, particularly the independent-samples t-test on the difference scores. Future research is recommended to use a larger and more balanced sample size to further verify these findings.

Overall, the findings of this study address the research question posed in Chapter I namely, how effective Wordwall is as an interactive digital medium in improving elementary school students' English proficiency by demonstrating that students taught using Wordwall achieved significantly higher post-test scores in English than students taught using conventional methods. These findings provide

empirical support for the use of Wordwall as an effective interactive digital tool for improving the English proficiency of fourth-grade elementary school students.



## CHAPTER V

### CONCLUSION AND SUGGESTION

This chapter presents the conclusions drawn from the findings and discussion outlined in Chapter IV, along with recommendations for teachers, schools, future researchers, and the general public, as well as a discussion of the limitations encountered during the research on the use of Wordwall as an interactive digital medium to improve the English language learning outcomes of fourth-grade students at MIN 20 Aceh Besar.

#### A. Conclusion

Based on the results of the data analysis and discussion presented in Chapter IV, several conclusions can be drawn regarding the effectiveness of Wordwall as an interactive digital medium in improving the English language learning outcomes of fourth-grade students at MIN 20 Aceh Besar..

First, the results of the paired-sample t-test showed that both the experimental and control groups experienced statistically significant improvements in their English scores from the pre-test to the post-test (Sig. = 0.001 for the experimental group and Sig. = 0.000 for the control group). This indicates that students in both groups made tangible progress in their English proficiency during the study, regardless of the learning medium used.

Second, a comparison of the post-test scores between the two groups conducted using the Mann-Whitney U test because the post-test data for the

experimental group were not normally distributed revealed a statistically significant difference (Asymp. Sig. (2-tailed) = 0.034,  $p < 0.05$ ). The experimental group achieved a higher mean rank (25.14) than the control group (17.12), indicating that students who learned using Wordwall achieved a higher level of final English proficiency than students who learned using conventional methods. This finding is further supported by the proportion of students who met the Minimum Proficiency Criteria (KKM) of 75 on the post-test: 78.57% of students in the experimental group met the KKM, whereas only 36.00% of students in the control group met the KKM.

Third, it should be emphasized that when the gain scores obtained by each group were compared using an independent-samples t-test, the difference was not statistically significant (Sig. = 0.053,  $p > 0.05$ ), although descriptively, the average gain score of the experimental group (18.21) was more than double that of the control group (9.00). These results indicate that this study has not yet provided sufficiently strong statistical evidence to conclude that Wordwall yields a significantly greater improvement in scores than conventional methods when the magnitude of improvement in the two groups is compared directly. Therefore, these findings cannot be interpreted as evidence that Wordwall is significantly more effective than conventional methods in accelerating improvements in student learning outcomes; significant results were found specifically in the comparison of students' final achievement levels, not in the magnitude of the improvement.

Taking all these findings into account, in response to the research question regarding how effective Wordwall is as an interactive digital medium in

improving elementary school students' English learning outcomes, it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted with regard to students' final English achievement: Students taught using Wordwall achieved significantly higher post-test scores than students taught using conventional methods, and the proportion of students who met the minimum passing score in that group was also much higher. However, this conclusion is limited to a comparison of final achievement levels and is not supported by statistically significant differences in the magnitude of learning gains between the two groups. Thus, it can be concluded that Wordwall makes a positive contribution to the English language learning achievements of fourth-grade students at MIN 20 Aceh Besar, without claiming that Wordwall has been statistically proven to yield a significantly greater improvement than conventional instruction.

### **B. Suggestion**

Based on the conclusion above, the researcher would like to offer the following suggestions:

#### **1. For Teachers**

English teachers, particularly at the elementary school level, are advised to consider using Wordwall as an alternative interactive digital tool for teaching English, especially for vocabulary and simple grammar, given that students who used Wordwall in this study achieved higher final scores and a significantly higher rate of meeting the minimum competency standard (KKM) compared to students taught using conventional methods. Teachers are also advised to use Wordwall

repeatedly over several sessions not just once so that its benefits for students' learning progress can be observed more comprehensively

## **2. For Schools**

Schools are encouraged to support the integration of interactive digital media, such as Wordwall, into the teaching and learning process by providing adequate facilities such as internet access and digital devices and by allocating sufficient, uninterrupted learning time, so that teachers can implement technology-based learning media consistently and effectively.

## **3. For Future Researchers**

Future researchers wishing to conduct similar studies are advised to design a treatment period that involves multiple sessions over a longer period of time rather than just a single session so that the impact of using Wordwall on students' English language learning outcomes can be examined more comprehensively, including its long-term effects. Researchers are also advised to schedule their research in such a way as to avoid periods when regular teaching and learning activities are reduced or disrupted, to use a larger sample size with a more balanced distribution between the experimental and control groups to increase statistical power, and to explore the use of Wordwall for other language skills or aspects, such as speaking or listening, and at different educational levels, in order to gain a broader picture of effectiveness.

#### 4. For General Readers

The general public, including parents and other education stakeholders, is expected to gain a broader understanding of the potential benefits of interactive digital media such as Wordwall in supporting children's English language learning, while recognizing that its long-term effectiveness still requires further evidence; they are also expected to promote its wise and balanced use alongside conventional learning activities.

##### C. Limitations of the Study

Although this study yielded meaningful findings, it has several limitations that should be taken into account when interpreting its results.

First, the two groups involved in this study were not selected randomly but rather through purposive sampling based on equivalence in baseline achievement, teachers, schedules, and facilities, as explained in Chapter III. Although this approach is commonly and appropriately used in quasi-experimental studies in classroom settings, it does not entirely eliminate the possibility of baseline differences between groups. In addition, the final sample sizes of the two groups were uneven (14 students in the experimental group and 25 students in the control group), which could affect the statistical power of some analyses, particularly the independent-samples t-test on the difference in scores (gain).

Second, and this is an important point to emphasize, the Wordwall intervention in this study was conducted only once, not over multiple sessions. These limitations arose due to the limited amount of effective research time

available, as this study was conducted before and after the month of Ramadan and was interrupted during Ramadan itself a period when regular school activities were not as active as usual and were more focused on religious activities. As a result, the time available to administer the Wordwall intervention to the experimental group was very limited, so the researchers were only able to conduct the intervention during a single session.

Because the intervention was conducted only once, the results of this study reflect changes in students' English language learning outcomes following a single session of Wordwall use; they do not yet reflect the long-term impact of Wordwall when used continuously over a longer learning period. Significant differences in students' final achievement scores, as well as non-significant differences in the magnitude of improvement (gain) between the two groups, should be interpreted in the context of this brief, single-session intervention. The repeated and sustained use of Wordwall over several sessions has the potential to yield different results, both in terms of the magnitude of student improvement and the consistency of the observed effects; however, this possibility could not be examined within the scope of this study.

Given these limitations, the findings of this study should be viewed as preliminary indications of Wordwall's potential as an interactive digital medium for English language learning at the elementary school level, rather than as definitive and generalizable evidence of its long-term effectiveness. Further research that addresses the above limitations is needed to gain a more

comprehensive understanding of Wordwall's role in improving elementary school students' English language learning outcomes.



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## APPENDICES

### Appendix A : Research Permission Letter



**KEMENTERIAN AGAMA REPUBLIK INDONESIA  
UNIVERSITAS ISLAM NEGERI AR-RANIRY BANDA ACEH  
FAKULTAS TARBIYAH DAN KEGURUAN**

Jl. Syekh Abdur Rauf Kopelma Darussalam Banda Aceh Telp/Fax : 0651-752921

Nomor : B-408/Un.08/FTK.1/TL.00/1/2026

Lamp : -

Hal : *Penelitian Ilmiah Mahasiswa*

Kepada Yth,

Kepala MIN 20 Kabupaten Aceh Besar

Assalamualaikum Warahmatullahi Wabarakatuh.

Fakultas Tarbiyah Dan Keguruan UIN Ar-Raniry dengan ini menerangkan bahwa:

NIM : 220203160

Nama : SYAHRINA MAGHFIRAH

Program Studi/Jurusan : Pendidikan Bahasa Inggris

Alamat : JALAN BLANG BINTANG LAMA ULADEH LAM SABANG

Saudara yang tersebut namanya diatas benar mahasiswa Fakultas Tarbiyah Dan Keguruan bermaksud melakukan penelitian ilmiah di lembaga yang Bapak/Ibu pimpin dalam rangka penulisan Skripsi dengan judul *USING WORDWALL AS INTERACTIVE DIGITAL MEDIA IN IMPROVING ELEMENTARY STUDENTS' ENGLISH ACHIEVEMENT*

Banda Aceh, 23 Januari 2026

An. Dekan

Wakil Dekan Bidang Akademik dan Kelembagaan



Prof. Dr. Buhori Muslim, M.Ag.

NIP. 197508152001121002

Berlaku sampai : 27 Februari 2026

جامعة الرانيري

AR - RANIRY

## Appendix B : Letter of Research Completion



 **KEMENTERIAN AGAMA REPUBLIK INDONESIA**  
**KEMENTERIAN AGAMA KABUPATEN ACEH BESAR**  
**MADRASAH IBTIDAIYAH NEGERI 20 ACEH BESAR**  
 Jln. Tgk. Glee Iniem Tungkol Darussalam; Kode Pos : 23373;  
 Email : [mailangkob\\_acehbesar@yahoo.com](mailto:mailangkob_acehbesar@yahoo.com);  
 Website : <https://min20acehbesar.com>;

Nomor : B-510 / ML01.04.19 / TL.00 / 563 / 07 / 2026  
 Lampiran :  
 Perihal : *Penelitian Ilmiah Mahasiswa*

Kepada Yth :  
 Dekan Fakultas Tarbiyah dan Keguruan UIN Ar-Raniry  
 Darussalam Banda Aceh  
 di-  
 Tempat

Assalamu'alaikum Warahmatullahi Wabarakatuh  
 Dengan hormat,  
 Sehubungan dengan surat Wakil Dekan Fakultas Tarbiyah dan Keguruan UIN Ar-Raniry Darussalam Banda Aceh Nomor: B-408/Ua.08/FTK.1/TL.00/1/2026, Tanggal 23 Januari 2026, Perihal Penelitian Ilmiah Mahasiswa. Maka dengan ini kami menerangkan bahwa:

Nama : SYAHRINA MAGHFIRAH  
 NIM : 220203160  
 Jurusan : Pendidikan Bahasa Inggris  
 Alamat : Jln. Blang Bintang Lama Ulaheh Lam Sabang

Telah selesai melaksanakan Penelitian Ilmiah dalam rangka penulisan Skripsi yang berjudul : *USING WORDWALL AS INTERACTIVE DIGITAL MEDIA IN IMPROVING ELEMENTARY STUDENTS' ENGLISH ACHIEVEMENT* pada tanggal : 04 April 2026

Demikianlah surat keterangan penelitian ini dibuat dengan sebenarnya untuk dapat dipergunakan seperlunya.

Tungkob, 31 Juli 2026  
 Kepala Madrasah  
  
 Adhik, S.Ag, MA  
 Nip. 19680304 199403 2 004

**جامعة الرانيري**  
**AR - RANIRY**

### Appendix C : Lesson Plan

| INFORMASI UMUM PERANGKAT AJAR |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. IDENTITAS MODUL            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Penyusun                      | Syahrina Maghfirah                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Instansi                      | MIN 20 Aceh Besar                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Tahun                         | 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Jenjang Sekolah               | Sekolah Dasar (SD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Mata Pelajaran                | Bahasa Inggris                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Fase                          | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Topik                         | Daily Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Kelas                         | IV (Empat)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Alokasi Waktu                 | 2 x 30 menit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| B. TUJUAN PEMBELAJARAN        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Tema Kurikulum                | Cinta Allah swt dan Rasul-Nya, cinta diri dan sesama dan cinta lingkungan                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Materi insersi                | Menginternalisasikan materi Daily Activities dalam kehidupan sehari-hari melalui pendekatan nilai-nilai cinta kepada Allah swt dan Rasul-Nya, sesama manusia dan lingkungan                                                                                                                                                                                                                                                                                                                    |
| Capaian Pembelajaran (CP)     | <ul style="list-style-type: none"> <li>• Membaca – Memirsa<br/>Peserta didik mampu mengidentifikasi kosakata <i>daily activities</i> melalui media digital interaktif.</li> <li>• Menyimak - Berbicara<br/>Peserta didik mampu mengidentifikasi kosakata <i>daily activities</i> melalui tampilan visual dan permainan digital.</li> <li>• Menulis - Mempresentasikan<br/>Peserta didik mampu menuliskan dan menyampaikan kosakata <i>daily activities</i> dalam kalimat sederhana.</li> </ul> |

|                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                             |
| Tujuan Pembelajaran                                                                                                                                                                                                                                                                                                                                                                                            | <ol style="list-style-type: none"> <li>1. Mengenali dan memahami kosakata <i>daily activities</i> dengan tepat.</li> <li>2. Mencocokkan kosakata <i>daily activities</i> dengan gambar yang sesuai.</li> <li>3. Menggunakan kosakata <i>daily activities</i> dalam kalimat sederhana.</li> </ol>                            |
| Indikator Keberhasilan                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Peserta didik dapat menyebutkan minimal 8 kosakata <i>daily activities</i> dengan benar.</li> <li>• Peserta didik mampu menjawab soal Wordwall dengan tingkat ketepatan <math>\geq 75\%</math>.</li> <li>• Peserta didik aktif berpartisipasi dalam permainan Wordwall.</li> </ul> |
| C. KOMPETENSI DASAR                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                             |
| <ol style="list-style-type: none"> <li>1. Sebelum pembelajaran, peserta didik masih terbatas dalam penguasaan kosakata Bahasa Inggris tentang aktivitas sehari-hari. Setelah pembelajaran menggunakan Wordwall, peserta didik menunjukkan peningkatan pemahaman kosakata.</li> <li>2. Peserta didik mampu menghubungkan kosakata dengan visual secara lebih cepat melalui media digital interaktif.</li> </ol> |                                                                                                                                                                                                                                                                                                                             |
| D. PROFIL PANCASILAR - R A N I R Y                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                             |
| 1. Bernalar kritis                                                                                                                                                                                                                                                                                                                                                                                             | Memilih jawaban yang tepat dalam permainan Wordwall.                                                                                                                                                                                                                                                                        |
| 2. Gotong Royong                                                                                                                                                                                                                                                                                                                                                                                               | Menggunakan kosakata <i>daily activities</i> dalam konteks sederhana.                                                                                                                                                                                                                                                       |

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Mandiri                              | Mengikuti permainan dan mengerjakan evaluasi secara individu.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>E. SARANA DAN PRASARANA</b>          |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Sarana                                  | Laptop/HP, LCD proyektor, speaker, koneksi internet                                                                                                                                                                                                                                                                                                                                                                                                       |
| Prasarana                               | LKPD digital (Wordwall), buku catatan                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>F. MODEL DAN METODE PEMBELAJARAN</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Model                                   | Game-Based Learning                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Metode                                  | Demonstrasi, tanya jawab, latihan interaktif                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>G. KEGIATAN PEMBELAJARAN</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Kegiatan awal (10 Menit)                | <ol style="list-style-type: none"> <li>1. Guru memberi salam, berdoa, dan mengecek kehadiran siswa.</li> <li>2. Guru melakukan apersepsi dengan menanyakan aktivitas harian siswa.</li> <li>3. Guru menyampaikan tujuan pembelajaran dan menjelaskan bahwa pembelajaran akan menggunakan permainan digital Wordwall.</li> </ol>                                                                                                                           |
| Kegiatan Inti ( 40 Menit)               | <ol style="list-style-type: none"> <li>1. Guru memperkenalkan kosakata <i>daily activities</i> menggunakan gambar dan contoh lisan.</li> <li>2. Guru menampilkan Wordwall (matching picture-word / quiz).</li> <li>3. Peserta didik menjawab soal Wordwall secara bergantian atau individu menggunakan perangkat.</li> <li>4. Guru memberikan umpan balik langsung terhadap jawaban siswa.</li> <li>5. Peserta didik mengerjakan kuis Wordwall</li> </ol> |

|                                                                                                                                                                                      |                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                      | sebagai latihan penguatan.                                                                                                                                                                                                                                |
| Kegiatan Akhir<br>(10 Menit)                                                                                                                                                         | <ol style="list-style-type: none"> <li>1. Guru dan peserta didik menyimpulkan materi pembelajaran.</li> <li>2. Guru memberikan umpan balik terhadap hasil kerja individu siswa.</li> <li>3. Guru menutup pembelajaran dengan berdoa dan salam.</li> </ol> |
| <b>H. REFLEKSI</b>                                                                                                                                                                   |                                                                                                                                                                                                                                                           |
| Siswa                                                                                                                                                                                | Peserta didik menyampaikan pengalaman belajar menggunakan Wordwall dan kosakata baru yang dipelajari.                                                                                                                                                     |
| Guru                                                                                                                                                                                 | Guru mengevaluasi efektivitas penggunaan Wordwall dalam meningkatkan keterlibatan dan pemahaman kosakata siswa.                                                                                                                                           |
| <b>I. LAMPIRAN – LAMPIRAN</b>                                                                                                                                                        |                                                                                                                                                                                                                                                           |
| <ol style="list-style-type: none"> <li>1. Bahan Ajar</li> <li>2. Lembar Kerja Peserta Didik (LKPD):</li> <li>3. Lembar instrument penilaian LKPD</li> </ol>                          |                                                                                                                                                                                                                                                           |
| <b>J. Bahan Bacaan</b>                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Siswa                                                                                                                                                                                | Buku Paket Bahasa Inggris Kelas IV                                                                                                                                                                                                                        |
| Guru                                                                                                                                                                                 | Buku Paket Bahasa Inggris Kelas IV                                                                                                                                                                                                                        |
| <b>K. DAFTAR PUSTAKA</b>                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| <p>Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2021). <i>My Next Words Grade 4: Student's Book for Elementary School</i>. Jakarta: Pusat Kurikulum dan Perbukuan.</p> |                                                                                                                                                                                                                                                           |

Mengetahui  
Guru Pamong

Tungkob, 7 Februari 2026  
Guru PPL

Nuzul Fitriani, S.Pd.i  
NIP. 199004212025212014

Syahrina Maghfirah  
NIM. 220203160



## Bahan Ajar

### A. Pengantar Materi

*Daily Activities* adalah kegiatan yang dilakukan seseorang secara rutin setiap hari, mulai dari bangun tidur di pagi hari hingga kembali tidur di malam hari. Materi ini penting dipelajari oleh peserta didik kelas IV SD karena kosakata yang dipelajari berkaitan langsung dengan kehidupan sehari-hari siswa, sehingga mudah dipahami dan digunakan dalam konteks nyata.

Dalam pembelajaran ini, pengenalan kosakata *daily activities* disampaikan melalui media digital interaktif Wordwall agar siswa lebih termotivasi, aktif, dan terlibat dalam proses pembelajaran. Materi ini diadaptasi dari Unit 9: “I Go to School after Having Breakfast” pada buku *My Next Words Grade 4 Student’s Book*.

### B. Kosakata Utama (Daily Activities Vocabulary)

|                                                                                                                             |                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|  <p>wake up = bangun tidur</p>           |  <p>get up = bangun dari tempat tidur</p> |
|  <p>Brush your teeth = menyikat gigi</p> |  <p>Take a bath = mandi</p>               |



**Have breakfast = sarapan**



**Go to school = pergi ke sekolah**



**Study = belajar**



**Play = bermain**



**Do homework = mengerjakan PR**



**Read a book = membaca buku**



**Dinner = makan malam**



**Sleep = tidur**

### C. Pola Kalimat Sederhana

Dalam menyatakan aktivitas sehari-hari, peserta didik menggunakan Simple Present Tense dengan pola kalimat berikut:

1. Subject + Verb 1  
Contoh: *I wake up in the morning.*
2. Subject + Verb 1 + Object  
Contoh: *I brush my teeth.*
3. Subject + Verb 1 + Adverb of Time  
Contoh: *I go to school every day.*

Guru menjelaskan bahwa kata kerja tidak berubah karena subjek yang digunakan adalah *I*.

### D. Contoh Kalimat

- I wake up at six o'clock.
- I brush my teeth after waking up.
- I take a bath in the morning.
- I have breakfast at home.
- I go to school every day.
- I play with my friends in the afternoon.
- I do homework at night.
- I go to sleep at nine o'clock.



## LKPD

<https://wordwall.net/play/107044/911/788>

<https://wordwall.net/play/107047/007/431>

<https://wordwall.net/play/107047/350/187>

**Appendix D : Pre-Test and Post-Test Instruments****Name :****Class :****Instruction:**

Choose the correct answer!

**A. Multiple Choice**

1. I usually \_\_\_\_\_ up at 05.00 in the morning.
  - a. go
  - b. wake
  - c. sleep
  - d. play
2. After waking up, I \_\_\_\_\_ my teeth.
  - a. cook
  - b. brush
  - c. eat
  - d. wash
3. She \_\_\_\_\_ a bath before going to school.
  - a. take
  - b. takes
  - c. taking
  - d. took
4. We have breakfast in the \_\_\_\_\_.
  - a. bedroom
  - b. bathroom
  - c. kitchen
  - d. garden
5. I go to school after having \_\_\_\_\_.
  - a. lunch
  - b. dinner
  - c. breakfast
  - d. snack
6. They \_\_\_\_\_ in the classroom.
  - a. study
  - b. sleep
  - c. cook
  - d. play

7. My mother \_\_\_\_\_ in the kitchen.  
 a. plays  
 b. cooks  
 c. studies  
 d. reads
8. I \_\_\_\_\_ a kite in the field.  
 a. read  
 b. play  
 c. cook  
 d. study
9. At night, I \_\_\_\_\_ to sleep at 9 o'clock.  
 a. go  
 b. wake  
 c. brush  
 d. eat
10. Before sleeping, I \_\_\_\_\_ a book.  
 a. play  
 b. read  
 c. cook  
 d. water

### B. Matching

Match the activity with the correct meaning!

#### No English Activity

- 11 Get up
- 12 Take a bath
- 13 Have breakfast
- 14 Go to school
- 15 Brush your teeth

#### Indonesian Meaning

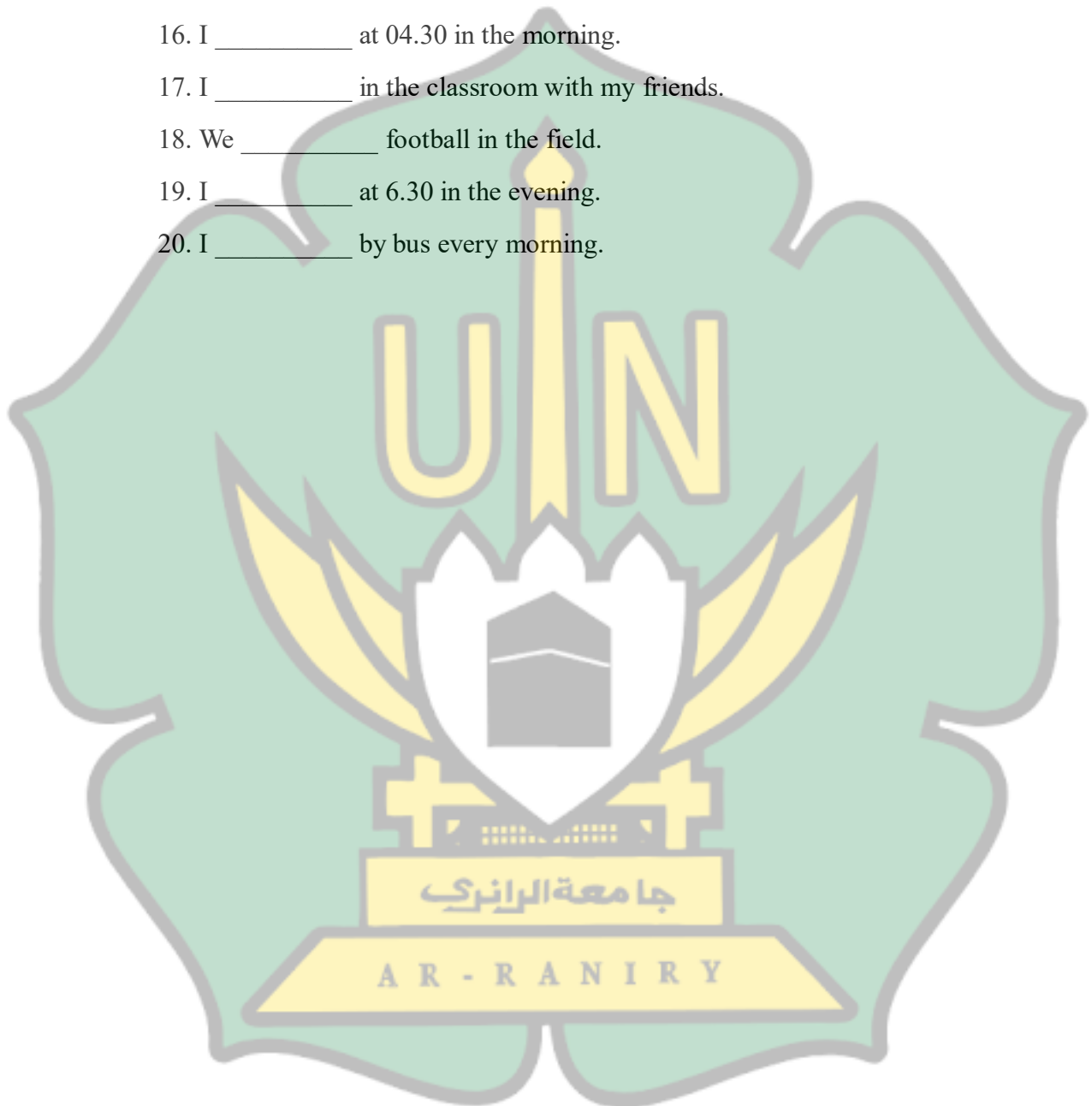
- a. Pergi ke sekolah
- b. Bangun tidur
- c. Mandi
- d. Sarapan
- e. Menggosok gigi

**C. Fill in the Blanks**

Choose the correct word!

*(wake up – go to school – study – play – have dinner)*

16. I \_\_\_\_\_ at 04.30 in the morning.
17. I \_\_\_\_\_ in the classroom with my friends.
18. We \_\_\_\_\_ football in the field.
19. I \_\_\_\_\_ at 6.30 in the evening.
20. I \_\_\_\_\_ by bus every morning.



|    |                     | Correlations |        |       |        |        |        |        |        |       |        |        |        |        |        |        |        |        |        |       |        | TOTAL  |
|----|---------------------|--------------|--------|-------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|
|    |                     | P1           | P2     | P3    | P4     | P5     | P6     | P7     | P8     | P9    | P10    | P11    | P12    | P13    | P14    | P15    | P16    | P17    | P18    | P19   | P20    |        |
| P1 | Pearson Correlation | 1            | .500** | .150  | .343** | .200   | .232   | .262*  | .464** | .177  | .171   | .539** | .455** | .444** | .255   | .404** | .464** | .288*  | .466** | .313* | .275*  | .660** |
|    | Sig. (2-tailed)     |              | <.001  | .265  | .009   | .136   | .082   | .034   | <.001  | .187  | .204   | <.001  | <.001  | <.001  | .055   | .002   | <.001  | .030   | <.001  | .018  | .038   | <.001  |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P2 | Pearson Correlation | .500**       | 1      | .163  | .224   | .132   | .397** | .329*  | .320*  | .151  | .274*  | .623** | .498** | .397** | .286*  | .496** | .320*  | .200   | .174   | .104  | .132   | .595** |
|    | Sig. (2-tailed)     | <.001        |        | .225  | .095   | .329   | .002   | .013   | .015   | .263  | .039   | <.001  | <.001  | .002   | .031   | <.001  | .015   | .136   | .195   | .441  | .329   | <.001  |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P3 | Pearson Correlation | .150         | .163   | 1     | .160   | -.033  | .084   | -.003  | .084   | -.207 | -.041  | .133   | -.041  | -.008  | .186   | .100   | -.016  | .057   | .133   | -.049 | -.228  | .123   |
|    | Sig. (2-tailed)     | .265         | .225   |       | .233   | .810   | .534   | .981   | .537   | .123  | .764   | .323   | .764   | .952   | .165   | .458   | .908   | .673   | .323   | .716  | .088   | .362   |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P4 | Pearson Correlation | .343**       | .224   | .160  | 1      | .149   | .333*  | .351** | .040   | .097  | .330*  | .375** | .330*  | .473** | .426** | .440** | .267*  | .272*  | .022   | -.039 | .298*  | .521** |
|    | Sig. (2-tailed)     | .009         | .095   | .233  |        | .268   | .011   | .008   | .769   | .471  | .012   | .004   | .012   | <.001  | <.001  | <.001  | .045   | .041   | .869   | .775  | .024   | <.001  |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P5 | Pearson Correlation | .200         | .132   | -.033 | .149   | 1      | .471** | .329*  | .080   | .075  | .125   | .174   | .274*  | .248   | .179   | .199   | .240   | -.175  | .025   | .280  | .053   | .355** |
|    | Sig. (2-tailed)     | .136         | .329   | .810  | .268   |        | <.001  | .013   | .554   | .577  | .356   | .195   | .039   | .063   | .184   | .139   | .072   | .193   | .854   | .051  | .697   | .007   |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P6 | Pearson Correlation | .232         | .397** | .084  | .333   | .471** | 1      | .594** | .215   | .198  | .506** | .407** | .296*  | .509** | .411** | .544** | .366** | .161   | .125   | .208  | .248   | .646** |
|    | Sig. (2-tailed)     | .082         | .002   | .534  | .011   | <.001  |        | <.001  | .109   | .139  | <.001  | .002   | .024   | <.001  | .001   | <.001  | .005   | .231   | .355   | .121  | .063   | <.001  |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P7 | Pearson Correlation | .282*        | .329*  | -.003 | .351** | .329*  | .594** | 1      | .441** | .313* | .610** | .539** | .394** | .451** | .332*  | .476** | .516** | .354** | .396** | .145  | .405** | .737** |
|    | Sig. (2-tailed)     | .034         | .013   | .981  | .008   | .013   | <.001  |        | <.001  | .018  | <.001  | <.001  | .002   | <.001  | .012   | <.001  | <.001  | .007   | .002   | .283  | .002   | <.001  |
|    | N                   | 57           | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57     | 57    | 57     | 57     |
| P8 | Pearson Correlation | .464**       | .320*  | .084  | .040   | .080   | .215   | .441** | 1      | .262* | .243   | .580** | .319*  | .215   | .16    |        |        |        |        |       |        |        |

\*. Correlation is significant at the 0.05 level (2-tailed).

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|----------------------------------------------|------------|
| .889             | .887                                         | 20         |

**Item-Total Statistics**

|     | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-----|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| P1  | 8.3158                     | 26.541                         | .603                             | .                            | .881                             |
| P2  | 8.4211                     | 27.034                         | .534                             | .                            | .883                             |
| P3  | 8.5789                     | 29.534                         | .053                             | .                            | .895                             |
| P4  | 8.2281                     | 27.286                         | .449                             | .                            | .886                             |
| P5  | 8.4211                     | 28.284                         | .275                             | .                            | .891                             |
| P6  | 8.2456                     | 26.581                         | .590                             | .                            | .881                             |
| P7  | 8.3509                     | 26.160                         | .691                             | .                            | .878                             |
| P8  | 8.4386                     | 27.286                         | .489                             | .                            | .885                             |
| P9  | 8.3333                     | 27.726                         | .368                             | .                            | .888                             |
| P10 | 8.2105                     | 26.562                         | .596                             | .                            | .881                             |
| P11 | 8.2982                     | 26.034                         | .705                             | .                            | .878                             |
| P12 | 8.2105                     | 26.348                         | .640                             | .                            | .880                             |
| P13 | 8.2456                     | 26.296                         | .648                             | .                            | .879                             |
| P14 | 7.8947                     | 27.703                         | .563                             | .                            | .883                             |
| P15 | 8.2632                     | 26.483                         | .610                             | .                            | .881                             |
| P16 | 8.4386                     | 27.036                         | .543                             | .                            | .883                             |
| P17 | 8.3158                     | 27.077                         | .494                             | .                            | .884                             |
| P18 | 8.2982                     | 27.463                         | .415                             | .                            | .887                             |
| P19 | 8.4035                     | 28.138                         | .300                             | .                            | .890                             |
| P20 | 8.4211                     | 27.320                         | .474                             | .                            | .885                             |

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A R - R A N I R Y

# Appendix F : Pre-Test and Post-Test Scores

## Experimental class

| No | Nama Siswa          | Pre-Test | Post-Test | Selisi |
|----|---------------------|----------|-----------|--------|
| 1  | Alzena Arfa Shezan  | 60       | 85        | 25     |
| 2  | Azka Azkiatussofa   | 40       | 45        | 5      |
| 3  | Fatih Al khair      | 90       | 95        | 5      |
| 4  | Geubrina Aisyah H   | 70       | 95        | 25     |
| 5  | Haura Putri Zalfa S | 85       | 90        | 5      |
| 6  | Jihan Fatiniya      | 70       | 90        | 20     |
| 7  | M. Ansari Putra R   | 55       | 85        | 30     |
| 8  | M. Haikal Aulia     | 80       | 90        | 10     |
| 9  | M. Ilham            | 65       | 85        | 20     |
| 10 | M. Zefa Alfariq     | 25       | 40        | 15     |
| 11 | Nurul Fathirah      | 20       | 25        | 5      |
| 12 | Siti Fatimah        | 40       | 95        | 55     |
| 13 | Syakira Amalia      | 40       | 75        | 35     |
| 14 | Zaura Mizna Raditya | 95       | 95        | 0      |
|    |                     | 59,6429  | 77,8571   |        |

A R - R A N I R Y

**Control class**

| No | Nama Siswa            | Pre-Test | Post-Test | Selisi |
|----|-----------------------|----------|-----------|--------|
| 1  | Azzam Darmawan        | 40       | 45        | 5      |
| 2  | Ahmad Naufal          | 30       | 45        | 15     |
| 3  | Athifa Rafanda        | 75       | 80        | 5      |
| 4  | Afnan Dzakia          | 55       | 70        | 15     |
| 5  | Cut Zahirah Ulya      | 55       | 50        | -5     |
| 6  | Elvina Sabrina        | 35       | 55        | 20     |
| 7  | Fitri Ramdhani        | 35       | 45        | 10     |
| 8  | Khaira Kamila Mufriza | 50       | 80        | 30     |
| 9  | Layyina Jihan Zahira  | 85       | 85        | 0      |
| 10 | Muhammad Habil        | 40       | 40        | 0      |
| 11 | Muhammad Arsyil       | 40       | 45        | 5      |
| 12 | Muhammad Bilal Amra   | 55       | 70        | 15     |
| 13 | Mutya Ramadhani       | 50       | 60        | 10     |
| 14 | Mutiara As Syifa      | 95       | 95        | 0      |
| 15 | Mikhayla Ayuza        | 30       | 25        | -5     |
| 16 | Najwa Salsabila       | 45       | 45        | 0      |
| 17 | Rabiatul Adawiyah     | 40       | 50        | 10     |
| 18 | Rahma Fadhilah Akmal  | 60       | 75        | 15     |
| 19 | Rafikul A'laq         | 40       | 55        | 15     |
| 20 | Rajul Devi Muchtasyan | 60       | 70        | 10     |
| 21 | Rizqi Al Fatih        | 30       | 45        | 15     |
| 22 | Ruhul Isyriah         | 65       | 75        | 10     |
| 23 | Siti Hawabi Yusuf     | 90       | 100       | 10     |
| 24 | T. Riyad Ahmada       | 60       | 75        | 15     |
| 25 | Yasmin Musfira        | 90       | 95        | 5      |
|    |                       | 54       | 63        |        |

## Appendix G : Normality Test, Homogeneity Test, and Mann–Whitney U Test Results (SPSS Output)

### Explore

| Case Processing Summary |       |         |         |         |       |         |
|-------------------------|-------|---------|---------|---------|-------|---------|
|                         | Cases |         |         |         |       |         |
|                         | Valid |         | Missing |         | Total |         |
|                         | N     | Percent | N       | Percent | N     | Percent |
| Selisih Kelas Kontrol   | 25    | 100.0%  | 0       | 0.0%    | 25    | 100.0%  |

| Descriptives          |                                  |             |  | Statistic | Std. Error |
|-----------------------|----------------------------------|-------------|--|-----------|------------|
| Selisih Kelas Kontrol | Mean                             |             |  | 9.00      | 1.633      |
|                       | 95% Confidence Interval for Mean | Lower Bound |  | 5.63      |            |
|                       |                                  | Upper Bound |  | 12.37     |            |
|                       | 5% Trimmed Mean                  |             |  | 8.72      |            |
|                       | Median                           |             |  | 10.00     |            |
|                       | Variance                         |             |  | 66.667    |            |
|                       | Std. Deviation                   |             |  | 8.165     |            |
|                       | Minimum                          |             |  | -5        |            |
|                       | Maximum                          |             |  | 30        |            |
|                       | Range                            |             |  | 35        |            |
|                       | Interquartile Range              |             |  | 13        |            |
|                       | Skewness                         |             |  | .287      | .464       |
|                       | Kurtosis                         |             |  | .466      | .902       |

| Tests of Normality    |                                 |    |      |              |    |      |
|-----------------------|---------------------------------|----|------|--------------|----|------|
|                       | Kolmogorov-Smirnov <sup>a</sup> |    |      | Shapiro-Wilk |    |      |
|                       | Statistic                       | df | Sig. | Statistic    | df | Sig. |
| Selisih Kelas Kontrol | .151                            | 25 | .144 | .941         | 25 | .152 |

a. Lilliefors Significance Correction

## T-Test

Paired Samples Statistics

|        |                         | Mean  | N  | Std. Deviation | Std. Error Mean |
|--------|-------------------------|-------|----|----------------|-----------------|
| Pair 1 | Pre-Test Kelas Kontrol  | 54.00 | 25 | 19.843         | 3.969           |
|        | Post-Test Kelas Kontrol | 63.00 | 25 | 19.843         | 3.969           |

Paired Samples Correlations

|        |                                                  | N  | Correlation | Sig. |
|--------|--------------------------------------------------|----|-------------|------|
| Pair 1 | Pre-Test Kelas Kontrol & Post-Test Kelas Kontrol | 25 | .915        | .000 |

Paired Samples Test

|        |                                                  | Paired Differences |                |                 |                                           |
|--------|--------------------------------------------------|--------------------|----------------|-----------------|-------------------------------------------|
|        |                                                  | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |
|        |                                                  |                    |                |                 | Lower Upper                               |
| Pair 1 | Pre-Test Kelas Kontrol - Post-Test Kelas Kontrol | -9.000             | 8.165          | 1.633           | -12.370                                   |

Paired Samples Test

|        |                                                  | Paired ...                         |        |    |                 |
|--------|--------------------------------------------------|------------------------------------|--------|----|-----------------|
|        |                                                  | 95% Confidence Interval of the ... | t      | df | Sig. (2-tailed) |
|        |                                                  | Upper Lower                        |        |    |                 |
| Pair 1 | Pre-Test Kelas Kontrol - Post-Test Kelas Kontrol | -5.630 -5.511                      | -5.511 | 24 | .000            |

## T-Test

Group Statistics

| Kelas                       | N  | Mean  | Std. Deviation | Std. Error Mean |
|-----------------------------|----|-------|----------------|-----------------|
| Nilai Selisih Kelas Kontrol | 25 | 9.00  | 8.165          | 1.633           |
| Kelas Digital               | 14 | 18.21 | 15.141         | 4.047           |

Independent Samples Test

|               |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |
|---------------|-----------------------------|-----------------------------------------|------|------------------------------|--------|
|               |                             | F                                       | Sig. | t                            | df     |
| Nilai Selisih | Equal variances assumed     | 5.976                                   | .019 | -2.481                       | 37     |
|               | Equal variances not assumed |                                         |      | -2.112                       | 17.330 |

Independent Samples Test

|               |                             | t-test for Equality of Means |                 |                       |                                                          |
|---------------|-----------------------------|------------------------------|-----------------|-----------------------|----------------------------------------------------------|
|               |                             | Sig. (2-tailed)              | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference<br>Lower Upper |
| Nilai Selisih | Equal variances assumed     | .018                         | -9.214          | 3.714                 | -16.740                                                  |
|               | Equal variances not assumed | .050                         | -9.214          | 4.364                 | -18.408                                                  |

Independent Samples Test

|               |                             | t-test for Equality of Means                             |
|---------------|-----------------------------|----------------------------------------------------------|
|               |                             | 95% Confidence Interval of the Difference<br>Lower Upper |
| Nilai Selisih | Equal variances assumed     | -1.689                                                   |
|               | Equal variances not assumed | -0.021                                                   |

## Explore

Case Processing Summary

|                         | Cases |         |         |         |       |         |
|-------------------------|-------|---------|---------|---------|-------|---------|
|                         | Valid |         | Missing |         | Total |         |
|                         | N     | Percent | N       | Percent | N     | Percent |
| Post-Test Kelas Kontrol | 14    | 35.9%   | 25      | 64.1%   | 39    | 100.0%  |
| Post-Test Kelas Digital | 14    | 35.9%   | 25      | 64.1%   | 39    | 100.0%  |

Descriptives

|                         |                                  |             | Statistic | Std. Error |
|-------------------------|----------------------------------|-------------|-----------|------------|
| Post-Test Kelas Kontrol | Mean                             |             | 61.79     | 4.821      |
|                         | 95% Confidence Interval for Mean | Lower Bound | 51.37     |            |
|                         |                                  | Upper Bound | 72.20     |            |
|                         | 5% Trimmed Mean                  |             | 61.15     |            |
|                         | Median                           |             | 57.50     |            |
|                         | Variance                         |             | 325.412   |            |
|                         | Std. Deviation                   |             | 18.039    |            |
|                         | Minimum                          |             | 40        |            |
|                         | Maximum                          |             | 95        |            |
|                         | Range                            |             | 55        |            |
|                         | Interquartile Range              |             | 35        |            |
|                         | Skewness                         |             | .476      | .597       |
|                         | Kurtosis                         |             | -1.182    | 1.154      |
| Post-Test Kelas Digital | Mean                             |             | 77.86     | 6.240      |
|                         | 95% Confidence Interval for Mean | Lower Bound | 64.38     |            |
|                         |                                  | Upper Bound | 91.34     |            |
|                         | 5% Trimmed Mean                  |             | 79.84     |            |
|                         | Median                           |             | 87.50     |            |
|                         | Variance                         |             | 545.055   |            |
|                         | Std. Deviation                   |             | 23.346    |            |
|                         | Minimum                          |             | 25        |            |
|                         | Maximum                          |             | 95        |            |
|                         | Range                            |             | 70        |            |
|                         | Interquartile Range              |             | 28        |            |

### Descriptives

|          | Statistic | Std. Error |
|----------|-----------|------------|
| Skewness | -1.487    | .597       |
| Kurtosis | .873      | 1.154      |

### Tests of Normality

|                         | Kolmogorov-Smirnov <sup>a</sup> |    |                   | Shapiro-Wilk |    |      |
|-------------------------|---------------------------------|----|-------------------|--------------|----|------|
|                         | Statistic                       | df | Sig.              | Statistic    | df | Sig. |
| Post-Test Kelas Kontrol | .181                            | 14 | .200 <sup>*</sup> | .901         | 14 | .117 |
| Post-Test Kelas Digital | .334                            | 14 | .000              | .732         | 14 | .001 |

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

a. Lilliefors Significance Correction

### Test of Homogeneity of Variances

|                 |               | Levene Statistic | df1 | df2 | Sig. |
|-----------------|---------------|------------------|-----|-----|------|
| Nilai Post-Test | Based on Mean | .063             | 1   | 37  | .803 |

### Mann-Whitney Test

| Ranks                         |    |           |              |  |
|-------------------------------|----|-----------|--------------|--|
| Kelas                         | N  | Mean Rank | Sum of Ranks |  |
| Nilai Post-Test Kelas Kontrol | 25 | 17.12     | 428.00       |  |
| Kelas Digital                 | 14 | 25.14     | 352.00       |  |
| Total                         | 39 |           |              |  |

### Test Statistics<sup>a</sup>

|                                | Nilai Post-Test   |
|--------------------------------|-------------------|
| Mann-Whitney U                 | 103.000           |
| Wilcoxon W                     | 428.000           |
| Z                              | -2.121            |
| Asymp. Sig. (2-tailed)         | .034              |
| Exact Sig. [2*(1-tailed Sig.)] | .035 <sup>b</sup> |

a. Grouping Variable: Kelas

b. Not corrected for ties.

## Appendix H : Research Documentation



## AUTOBIOGRAPHY

Name : Syahrina Maghfirah  
 Place/Date of Birth : Lam Sabang/24 October 2004  
 Gender : Female  
 Nationality : Indonesia  
 Religion : Islam  
 Status : Single  
 Occupation : Student  
 Address : Ds. Lam Sabang, Kec. Kuta Baro, Kab. Aceh Besar  
 Email : [220203160@student.ar-raniry.ac.id](mailto:220203160@student.ar-raniry.ac.id)

### Parents

Father's Name : Alm. Azhar  
 Mother's Name : Nur Amaliah

### Educational Background

Elementary School : MIN 20 Aceh Besar  
 Junior High School : MTsS MUQ Pagar Air  
 Senior High School : Man 3 Kota Banda Aceh