

A THESIS
USING AUGMENTED REALITY AS AN INTERACTIVE
LEARNING TOOL TO IMPROVE STUDENTS' VOCABULARY
AT SMPN9 PAREPARE



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ENGLISH EDUCATION PROGRAM
TARBIYAH FACULTY
STATE ISLAMIC INSTITUTE
PAREPARE

2026

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BY

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Submitted to the English Program of Tarbiyah Faculty of State Islamic
Institute of Parepare in Partial Fulfillment of the Requirements
for the Degree of Sarjana Pendidikan (S.Pd)

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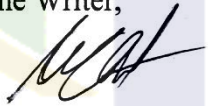
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ABSTRACT

Muhammad Nuh Hamsyar. *Using Augmented Reality as an Interactive Learning Tool to Improve Students Vocabulary at SMPN 9 Parepare* (Supervised by: Ambo Dalle).

This study aimed to determine whether using Augmented Reality (AR) as an interactive learning tool can improve students' vocabulary at SMPN 9 Parepare. The study was initiated by the vocabulary difficulties experienced by the students, where limited vocabulary hindered their communication and academic performance. Additionally, students demonstrated low motivation, a lack of interest, and a high dependency on translation websites or AI tools to complete their assignments rather than engaging in independent critical thinking.

This research employed a quantitative method with a pre-experimental design. The population of this study was the seventh-grade students of SMPN 9 Parepare, and a sample of 31 students from class VII.2 was selected using a purposive sampling technique. The research instrument was a vocabulary test consisting of a 20-item multiple-choice pre-test and a 20-item multiple-choice post-test. The data obtained were analyzed statistically using Microsoft Excel.

The results showed that before the AR treatment, most students were classified as "poor," with a pre-test total score of 1,475 and an average score of 47.58. After implementing the AR treatment using the Assemblr Edu application, the students' scores improved to the "fair" and "good" classifications, with no students failing, achieving a post-test total score of 2,105 and an average score of 67.90. Statistical analysis revealed that the t-test value (8.036) far exceeded the t-table value (2.042) at a 5% significance level ($Df = 30$), confirming a significant difference between the pre-test and post-test results. This demonstrates that utilizing Augmented Reality significantly enhanced students' vocabulary mastery and highlights its potential as an innovative teaching tool.

Keyword : Augmented reality, Interactive learning Tool, Vocabulary Mastery, Assemblr Edu.

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TRANSLITERATION AND ABBREVIATIONS

A. Transliteration

1. Consonants

Arabic consonant phonemes which in the Arabic writing system are symbolized by letters, in this transliteration some are symbolized by letters and some are symbolized by signs, and some are symbolized by letters and signs.

List of Arabic letters and their transliteration into Latin letters:

Letters	Name	Latin Letters	Name
ا	Alif	Not Denoted	Not Denoted
ب	Ba	B	Be
ت	Ta	T	Te
ث	Tsa	Ts	te dan sa
ج	Jim	J	Je
ح	Ha	h	ha (with a dot below)
خ	Kha	Kh	ka and ha
د	Dal	D	De
ذ	Dzal	Dz	de and zet
ر	Ra	R	Er
ز	Zai	Z	Zet
س	Sin	S	Es

ش	Syin	Sy	es and ya
ص	Shad	ş	es (with a dot below)
ض	Dhad	ḍ	de (with a dot below)
ط	Ta	ṭ	te (with a dot below)
ظ	Za	ẓ	zet (with a dot below)
ع	‘ain	‘	Inverted commas up
غ	Gain	G	Ge
ف	Fa	F	Ef
ق	Qaf	Q	Qi
ك	Kaf	K	Ka
ل	Lam	L	El
م	Mim	M	Em
ن	Nun	N	En
و	Wau	W	We
هـ	Ha	H	Ha
ء	Hamzah	’	Apostrof
ي	Ya	Y	Ye

Hamzah (ء) which begins a word follows its vowel without any sign. If it occurs in the middle or at the end, it is written with a sign (‘).

2. Vocal

- a. Single vowels (monophthongs) Arabic whose symbols are signs or harakat, transliterated as follows:

Sign	Name	Latin Letters	Name
َ	Fathah	A	A
ِ	Kasrah	I	I
ُ	Dhomma	U	U

- b. Arabic double vowels (diphthongs) whose symbols are a combination of harakat and letters, transliterated in the form of a combination of letters, namely:

Sign	Name	Latin Letters	Name
َئِ	Fathah and Ya	Ai	a and i
َؤِ	Fathah and Wau	Au	a and u

Example :

كَيْفَ:Kaifa

حَوْلَ: Haula

3. Maddah

Maddah or long vowels whose symbols are harkat and letters, transliterated in the form of letters and signs, namely:

Harkat and Letters	Name	Letters and Marks	Name

نَا / يَ	Fathah and Alif or ya	Ā	a and line above
يَ	Kasrah and Ya	Ī	i and line above
يَ	Kasrah and Ya	Ī	i and line above
وُ	Kasrah and Wau	Ū	u and line above

Example :

مَاتَ : māta

رَمَى : ramā

قِيلَ : qīla

يَمُوتُ : yamūtu

4. *Ta Marbutah*

There are two transliterations for tamarbutah:

- Tamarbutah which is alive or received fathah, kasrah and dammah, is transliterated as [t].
- Tamarbutah that dies or gets a sukun, the transliteration is [h].

If the last word with tamarbutah is followed by a word that uses the article al- and the reading of the two words is separated, then the tamarbutah is transliterated with ha (h).

Example :

رَوْضَةُ الْجَنَّةِ : rauḍahal-jannahataurauḍatuljannah

الْمَدِينَةُ الْفَاضِلَةُ : al-madīnahal-fāḍilahatau al-madīnatulfāḍilah

الْحِكْمَةُ : al-hikmah

5. *Syaddah (Tasydid)*

Syaddah or tasydid which in the Arabic writing system is symbolized by a tasydid sign (ّ), in this transliteration is symbolized by a repetition of letters (double consonants) which is given a syaddah sign.

Example :

رَبَّنَا : *Rabbanā*

نَجَّيْنَا : *Najjainā*

الْحَقُّ : *al-haqq*

الْحَجُّ : *al-hajj*

نُعْم : *nu‘ima*

عُدُو : *‘aduwwun*

If the letters ىbertasydid at the end of a word and preceded by the letter kasrah ي, then it is transliterated as the letter *maddah* (i).

Example :

عَرَبِيٌّ : Arabi (not ‘Arabiyyor ‘Araby)

عَلِيٌّ : Ali (not ‘Alyyor ‘Aly)

6. Article

The article in the Arabic writing system is symbolized by the letters لا (*alif lam ma’arifah*). In this transliteration guideline, the article of clothing is transliterated as usual, al-, both when it is followed by shamsiah letters and qamariah letters. The article does not follow the sound of the letter directly following it. The article is written separately from the word that follows it and is connected with a horizontal line. (-). Example :

الشَّمْسُ : *al-syamsu* (notasy- syamsu)

الزَّلْزَلَةُ : *al-zalzalah* (notaz-zalzalah)

الفَلْسَفَةُ : *al-falsafah*

الْبِلَادُ : *al-bilādu*

7. Hamzah

Rules for transliterating hamzah letters into apostrophes (‘) only applies to hamzahs located in the middle and end of words. However, if the hamzah is located at the beginning of the word, it is not symbolized, because in Arabic writing it is an alif. Example:

تَأْمُرُونَ : *ta'murūna*

النَّوْغُ : *al-nau'*

شَيْءٌ : *syai'un*

أُمِرْتُ : *Umirtu*

8. Arabic words commonly used in Indonesian

Arabic words, terms or sentences that are transliterated are words, terms or sentences that have not been standardized in Indonesian. Words, terms or sentences that are already common and part of the Indonesian language treasury, or are often written in Indonesian writing, are no longer written according to the above transliteration method. For example, the word Al-Qur'an (dar Qur'an), Sunnah. However, if these words are part of a series of Arabic texts, then they must be transliterated as a whole. Example:

Fīzilālal-qur'an

Al-sunnahqablal-tadwin

Al-ibāratbi 'umum al-lafzlābikhusus al-sabab

9. Lafzal-Jalalah (الله)

The word "Allah" which is preceded by particles such as the letters jar and other letters or acts as a mudafilaih (nominal phrase), is transliterated without the letter hamzah.

Example:

دِينُ اللَّهِ : *Dīnullah*

بِاللَّهِ : *billah*

As for the tamarbutah at the end of a word that is attributed to lafẓal-jalālah, it is transliterated with the letter [t]. Example:

هُمُ فِي رَحْمَةِ اللَّهِ : *Humfīrahmatillāh*

10. Capital Letters

Although the Arabic writing system does not recognize capital letters, in this transliteration they are also used based on the prevailing Indonesian spelling guidelines (EYD). Capital letters, for example, are used to write the initial letter of proper names (person, place, month) and the first letter at the beginning of a sentence. If a proper name is preceded by the article (al-), then the initial letter of the proper name is written in capital letters, not the initial letter of the article. If it is at the beginning of a sentence, then the letter A of the article is capitalized (Al). Example:

WamāMuhammadunillārasūl

Inna awwalabaitinwudi ‘alinnāsilalladhībiBakkatamubārakan

Syahru Ramadan al-ladhīunzilafihal-Qur’an

Nasir al-Din al-Tusī

AbūNasral-Farabi

If a person's legal name uses Ibn (son of) and Abū (father of) as the second last name, then both last names must be mentioned as the last name in the bibliography or reference list. Example:

Abūal-Walid Muhammad ibnuRusyd, ditulismenjadi: IbnuRusyd, Abūal-Walīd Muhammad (bukan: Rusyd, Abūal-Walid Muhammad Ibnu)

NaşrḤamīdAbū Zaid, ditulismenjadi: Abū Zaid, NaşrḤamīd (bukan:Zaid, NaşrḤamīdAbū)

11. Abbreviations

Some of the standardized abbreviations are:

swt.	=	<i>subḥānahūwata'āla</i>
saw.	=	<i>ṣallallāhu 'alaihiwasallam</i>
a.s.	=	<i>'alaihi al- sallām</i>
H	=	Hijriah
M	=	Masehi
SM	=	SebelumMasehi
l.	=	Lahir tahun
w.	=	Wafattahun
QS .../:...: 4	=	QS al-Baqarah/2:187 atau QS Ibrāhīm/ ..., ayat 4
HR	=	Hadis Riwayat

Some abbreviations in Arabic:

ص	=	صفحة
دم	=	بدون
صلعم	=	ﷺ
ط	=	طبعة
بن	=	بدون ناشر
الخ	=	إلى آخرها / إلى آخره

ج = جزء

Some abbreviations used specifically in the reference text need to be explained, including the following:

ed. : Editor (or, eds. [from the word editors] if more than one editor). Since in Indonesian the word "editor" applies to either one or more editors, it can remain abbreviated as ed. (without the s).

et al. : "And others" or "and friends" (abbreviation of et alia). Alternatively, the abbreviation et al. ("and friends") is used, written in regular/straight letters.

Cet. : Printings. Information on the frequency of printings of books or similar literature.

Terj. : Translation (by). This abbreviation is also used for translated works that do not mention the name of the translator.

Vol. : Volume. Used to indicate the number of volumes of a book or encyclopaedia in English. For Arabic books, the word juz is usually used.

No. : Number. Used to indicate the number of numbers of periodical scientific works such as journals, magazines, etc

CHAPTER I

INTRODUCTION

A. Background

Technology is a tool used in education to help teachers instruct students in order to achieve desired outcomes. In today's era of global education, proficiency in English is no longer viewed merely as an academic subject, but rather as an essential tool for accessing global information and digital technology. For Indonesian students, learning English as a foreign language (EFL) requires them to adapt to entirely new linguistic structures, phonetic sounds, and lexical systems. In EFL pedagogy, vocabulary is generally recognized as a fundamental pillar of language proficiency.

Vocabulary mastery serves as the foundation upon which the four macro language skills listening, speaking, reading, and writing are built. Without a rich vocabulary, students cannot comprehend written texts, express their thoughts, or engage in meaningful communication. Therefore, developing effective strategies for memorizing vocabulary is crucial in early-stage language education.¹ Vocabulary is vital as it forms the foundation of any language. It is particularly central to English language teaching, as students cannot understand others or effectively express their own ideas without sufficient vocabulary. Vocabulary mastery is also considered a crucial tool for English learners a limited vocabulary can significantly hinder effective communication.²

According to Barbara 2021, The use of technology allows for diverse and personalized learning experiences, catering to individual interests and learning styles. Through interactive simulations, virtual field trips, and collaborative online

¹ Norbert Schmitt, *Researching Vocabulary: A Vocabulary Research Manual* (Palgrave Macmillan, 2010), p. 4.

² А.С. Рвачева and others, "The Role of Social Media in Tourism", *Экономика И Предпринимательство*, no. 10(135) (2022), p. 07–11,

projects, technology transforms traditional teaching methods into interactive and participatory activities, fostering a sense of curiosity and exploration among students.³

Augmented Reality technology is also ideal for use as a learning tool, especially for helping children understand lesson material. One subject that is particularly well-suited to Augmented Reality technology is English, where engaging topics are presented to help children memorize English vocabulary more easily.⁴

Aprinaldi et al 2019, Augmented reality-based learning media in schools can significantly improve students' ability to understand learning concepts. This finding supports the idea that augmented reality can be used as an effective interactive learning tool to enhance students' vocabulary, as this technology has the potential to create a more engaging and interactive learning experience, there by helping students to expand their vocabulary in a more enjoyable and in meaningful way.⁵

Although interest in educational technology continues to grow, there is still relatively little empirical research on the specific effectiveness of Assemblr Edu. Assemblr Edu is an Augmented Reality (AR) platform specifically designed to enhance the teaching and learning process by offering interactive 2D and 3D digital models. The application, equipped with features such as lessons, topics, scanning, and profiles, transforms flat text into an immersive, game-like visual experience and interactive exercises. Through this AR integration, Assemblr Edu facilitates collaborative learning and visual-spatial mapping, which can effectively support vocabulary acquisition in young students. Therefore, this study aims to explore the practical application of Assemblr Edu as an interactive learning tool and to provide valuable empirical insights for teachers and students regarding alternative media that

³ Herni Tri Handayani, et al, "An Investigation of English Language Teachers" *Attitude toward the Use of Technology in Language Teaching at SMA 3 Parepare*, 4.3 (2024), p. 17–27.

⁴ Eri Sasmita Susanto, et al, "Pengembangan Aplikasi Smart-Book Sebagai Media Pembelajaran Bahasa Inggris Anak Berbasis AR (Augmented Reality)", *Jurnal Mnemonic*, 5.1 (2022), p. 64–71,

⁵ Sari, R. P., S. Utami, dan T. Hidayat. "Pemanfaatan Media Pembelajaran Berbasis Digital Pada Sekolah Menengah." *Jurnal Teknologi Pendidikan* 8, no. 1 (2023): 40-52.

are expected to help improve students' skills, particularly in terms of vocabulary mastery at the high school level.⁶

Based on the results of observations in grade VII made by researchers, English skills at SMPN 9 Parepare are still low, especially in terms of vocabulary, so researchers aims to improve students' vocabulary mastery by using Augmented Reality as an interactive learning tool while also increasing students' interest in learning English. In this case, the researcher extends to find out using augmented reality as an interactive learning tool to improve students vocabulary at SMPN 9 Parepare.

Based on the research background above, the study aims conduct a study entitled, "Using Augmented Reality as an Interactive Learning Tool to Imprtove Students' Vocabulary at SMPN 9 Parepare".

B. Research Questions

Based on the background of the study above, the research the formulates question as follows :

1. How students' vocabulary before using augmented reality as an interactive learning tool at SMP Negeri 9 Parepare ?
2. How students' vocabulary after using augmented reality as an interactive learning tool at SMP 9 Parepare ?
3. Is there any significant difference between the students' vocabulary before and after using the augmented reality at SMP Negeri 9 Parepare ?

C. Objective of the Research

Based on the research question above, the research the formulates question as follows :

⁶ Nuur Wachid Abdul Majid et al, "Effectiveness of Using Assemblr Edu Learning Media to Help Student Learning at School", *Jurnal Penelitian Pendidikan IPA*, 9.11 (2023), p. 43–49.

1. To find out students' vocabulary before using augmented reality as an interactive learning tool at SMP Negeri 9 Parepare
2. To find out students' vocabulary after using augmented reality as an interactive learning tool at SMP 9 Parepare.
3. To find the significant difference between the students' vocabulary before and after using the augmented reality at SMP Negeri 9 parepare.

D. Significances of the Research

After finishing this research, the researcher hopes the result of this research can give benefits for:

1. Teachers

This research is expected to provide valuable insights to English teachers about strategies in interactive vocabulary teaching, especially through the use of technology such as augmented reality.

2. Students

This research is expected to enhance students' vocabulary skills through the use of augmented reality (AR) media, which is an important component of learning English. By understanding the impact of technology-based learning, it is anticipated that students become more engaged in their vocabulary development, leading to improvements in their language skills and a more enjoyable learning experience.

3. For Future Researches

For future researchers, This research is expected to provide the advantages and benefits of using augmented reality features that can involve students in the learning process, solve real-world problems in various fields of education, and help improve their visualization skills.

CHAPTER II

REVIEW OF RELATED LITERATURE

A. Previous Research Finding

In this research, there are some reviews of related literature findings from previous researchers; they are :

The Research conducted by Luthfiyatul Lissa'adah and Arif Widiyatmoko entitled “*The Effectiveness of Augmented Reality based on Assemblr Edu to Increase Learning Interest And Student Learning Outcomes*” has similarities with this study, which both use Assemblr Edu media as one of the interactive learning tools based on augmented reality to increase student learning interest. The focus is equally on the use of augmented reality as an interactive learning media for students. However, the difference lay in the aspects that were taught. Luthfiyatul Lissa'adah and Arif Widiyatmoko's research used the quasi-experiment method and focused on the Effectiveness of Augmented Reality based on the use of Assemblr Edu application, including increasing student interest and learning outcomes. Meanwhile, this study focuses on aspects of improving students' vocabulary Mastery, using the pre-experimental method, using word games and memory reinforcement in learning, thus creating a more interesting and motivating learning experience for students in grade VII of SMP Negeri 9 Parepare.⁷

The research conducted by Nuur Wachid Abdul Majid entitled “*The Effectiveness of Using Assemblr Edu Learning Media to Help Student Learning at School*” has similarities with this research, which both use the Assemblr Edu application as one of the Augmented Reality-based interactive learning media where the Assemblr Edu application has several advantages such as making teaching and learning activities more interesting and interactive in learning English. The

⁷ Luthfiyatul Lissa'adah & Arif Widiyatmoko, “The Effectiveness of Augmented Reality based on Assemblr Edu to Increase Learning Interest and Student Learning Outcomes”, *Journal of Environmental and Science Education*, 3.2 (2023), p. 79–85

difference lies in the focus of the research. Their research emphasized on the effectiveness of the application and also the student sample was taken randomly from junior high/high school in West Java province. In contrast, this study focuses on improving students' vocabulary skills, student engagement, and the effectiveness of using Assemblr Edu application for students at SMP Negeri 9 Parepare.⁸

Another the research conducted by Akmal and Asfinatu Nurjanah titled “*The Effect of Augmented Reality (AR) on the Enhancement of Vocabulary in Elementary School Students: A Literature Review*” shares similarities with this study, as both focus on improving vocabulary comprehension and providing an engaging and interactive learning experience for students through the use of Augmented Reality applications. The difference lies in the methods and focus of the research conducted. Their study utilized various evaluation instruments, including Pre-tests, Post-tests, and interviews, while this research employs a systematic review using the SPIDER search strategy method, which includes sample (S), phenomenon of interest (PI), design (D), evaluation (E), and research type (R). Additionally, this study focuses on the seventh-grade students at SMP Negeri 9 Parepare.⁹

The similarities between the previous research findings and the research to be conducted are that they have the same focus on utilizing applications in language learning, involving the use of digital tools, such as Assemblr Edu as effective media for vocabulary acquisition among students and previous studies have shown the positive impact of applications on vocabulary improvement with the population referring to students, while the current study aims to investigate specifically the effectiveness of augmented reality application in improving vocabulary mastery of first grade students at SMP Negeri 9 Parepare, the current study to contribute further insights into the efficacy of digital language learning platforms in supporting vocabulary development in the context of English language education.

⁸ Majid, et al, “Effectiveness of Using Assemblr Edu Learning Media to Help Student Learning at School” *Jurnal Penelitian Pendidikan*, 9.11 (2023), p. 43–49.

⁹ Asfinatu Nurjanah, “*The Effect of Augmented Reality (AR) on the Enhancement of Vocabulary in Elementary School Students : A Literature Review*” (Atlantis Press SARL, 2024).

The previous research findings, the main differences lie in aspects such as focus, research methods, and sample populations. The earlier studies mostly examined the effectiveness of AR media in general or specific applications, and employed various methodologies such as quantitative experiments, qualitative research, and mixed methods. In contrast, this study is more specific to improving the vocabulary skills of seventh-grade students at SMP Negeri 9 Parepare through a quantitative pre-experimental approach using a particular AR application (e.g., Assemblr Edu), and it is based on a systematic review as the research foundation.

B. Theories Review

1. Concept of Technology

a. Technology

Technology is the practical application of scientific knowledge to solve human problems, optimize daily work processes, and bridge the gap between theoretical discoveries and real world applications. technology is information, a field of knowledge that is experiencing rapid development. Information technology is related to the processes of using it as a medium to assist in processing, handling, and transferring data from one device to another.

The use of Technology in the learning process can increase students' learning motivation. One of the benchmarks of learners' success in the learning process is their learning motivation. Therefore, one of the causes that can affect motivation in learning is the availability of learning tools that can be utilized through various learning media technologies.¹⁰

B. Media

¹⁰ Mustami, Jamaluddin, M. K., Ismail, M. I., & Mania, S. Pengaruh pemanfaatan bahan ajar berbasis TIK dan bahan cetak terhadap motivasi belajar pada mata pelajaran Aqidah Akhlak di MAN 1 Sinjai. *Edukasi Islami: Jurnal Pendidikan Islam*, (2022,) 11(01), 621–640.,

Media refers to the communication channels and tools used to store, deliver, and share information, news, and entertainment. It serves as the bridge connecting the source of a message to an audience, encompassing everything from traditional broadcasting to digital networks. Technology is still evolving and promises more individualized and efficient learning opportunities. Media is anything that can be used as an intermediary in the framework of the interaction process between teachers and students with a note that the media can facilitate or streamline the learning process.¹¹

c. Application

App, is the abbreviation of Application, means some kind of technology, system or product application. Application is not a new thing, all kinds of software running on personal computers are Application. But since the applications of Apple Corp mobile had be published, Apps has more refers to the application software running on smart phones and other mobile terminals, known as mobile applications, mobile client, etc. In this paper, the educational Apps only refers to the application of mobile education, does not contain the educational application running on personal computers.¹²

2. Concept of Augmented Reality

a. Definition of Augmented Reality

Augmented Reality or AR for short is the integration of information in a digital format that includes live video on the real-time environment of a particular user. In live video augmentation, integrating video images to a digital environment involves identifying objects that are replicated from features of the physical world and captured as any format considered as video images which mean increasing the

¹¹ Zhao, Y., & Wang, H. (2024). "Simulations and Internet-Based Tools in Modern Education: A Meta-Analysis." *International Journal Of Educational Technology*, 21(1), 55-72.

¹² Frawley, John, and Yue Wang. 2023. "Defining the Boundary of Mobile Education: A Critical Review of Smartphone Applications in Classroom Settings." *Journal of Educational Computing Research* 61 (2): 345–368

responsiveness of the resulting video images to the state required to control objects from the physical world itself.¹³

The Assemblr Edu application is an application that supports the use of Augmented Reality media. This application has several advantages, namely that it can provide direct experience to students, can visualize objects as a whole, and can provide a clear picture of objects. This application is designed to help teachers and students use and develop two-or three-dimensional content that can be realized in the form of Augmented Reality.

b. How to Use Augmented Reality

Augmented Reality (AR) can be displayed on various devices such as glasses, screens, cellphones, and so on. For the device to function properly, certain amounts of data in the form of video images, animations, and 3D or 4D models need to be used, so one can see the result in artificial and natural light. Augmented Reality (AR) uses SLAM (Simultaneous Localization and Mapping) technology, sensors, and depth gauges. For example, collecting sensor data to calculate the distance to the sensor object location. Here are some components of Augmented Reality (AR):¹⁴

1) Cameras and Sensors

Cameras and sensors are used to collect user collaboration data and send it for processing. Phone cameras have the ability to scan data and use this information to locate physical objects and create 3D or 4D models.

2) Projection

This component refers to a smaller projector than typically used in Augmented Reality (AR) headsets, which takes data information from sensors and projects computer content onto a surface for viewing. Actually, the use of projection in AR has not been fully designed to be used in commercial goods or services.

¹³ Godoy Jr., "Augmented Reality for Education: A Review", *International Journal of Innovative Science and Research Technology*, 5.6 (2020), p. 39–45.

¹⁴ Lalita Chandiany Adiputri, et al., *Tutorial Pembuatan Protipe Prediksi Ketinggian Air (PKA) dan Augmented Reality Berbasis Iot Versi 2* (Bandung: Kreatif Industri Nusantara, 2020).

3) Reflection

Some Augmented Reality (AR) mobile phones have mirrors to help the human eye view virtual images. Some of them have a small mirror variation that bends and some have double sided mirrors to reflect light towards the camera and the user's eyes. The purpose of the reflection is to play with the proper picture settings.

c. The Advantages of Augmented Reality in Application

There are some advantages Augmented Reality in Assemblr Edu application as follows:

1) The advantages for students:

augmented reality offers many advantages for interactive learning, making education more engaging, personalized, and effective. By harnessing the power of augmented reality, students not only improve language comprehension but also about personalized experience by introducing augmented reality-based technology..

2) The advantages for teacher include:

Advantages for teachers, teacher can enhancing their ability to deliver engaging, effective, and personalized instruction. By leveraging the power of augmented reality, educators can create immersive learning experiences that not only captivate students but also foster critical thinking, collaboration, and a deeper understanding of complex concepts.

3) The advantages for educational are full Teaching Tool:

Teachers can use Assemblr Edu to supplement lessons to enhance the educational experience for both teachers and students. It offers interactive, customizable, and engaging features making it an invaluable resource in the classroom. Using augmented reality, it can encourage engagement in language classes, making it easier for teachers to maintain a lively and interactive classroom environment.

4) An Example of Implementing Augmented Reality

1) Games

The first example of implementing augmented reality is a game. Currently, several smartphone games or games have implemented augmented reality technology, one of which is the Jurassic World Alive game. This game has its own charm because it has the concept of combining the real world with your favorite Dinosaurs characters. Other games that use the concept of augmented reality are Zombie Run, Pokemon Go, and many more.

2) Social Media

It's incomplete if we don't discuss social media. One of the AR features that you often use is on Instagram. That's right, filters, almost everyone can use filters because there are several interesting and entertaining filters available, of course. These filters are created using AR as a 3D object and also use a touch of AI (Artificial Intelligence) technology as its logic.

3) Medical

In the world of medical education, Augmented Reality technology is often used. Both in the form of applications and other operating equipment. At the Cleveland Clinic at Case Western Reserve University, students use Augmented Reality headsets to learn the intricacies of human anatomy.

4) Broadcast

This is definitely an area that you come across a lot. From weather broadcasts to sports events. Augmented Reality in the form of images on your TV screen is commonplace. If you usually find quality impressions in terms of visual objects, that's the use of Augmented Reality technology. An example of a film that uses AR is Iron Man.

Augmented Reality (AR) is a variation of virtual reality (VR), where virtual reality (VR) brings users together in a virtual environment. When a user joins a virtual environment, the user cannot see the real environment around him. In contrast to augmented reality (AR), this allows users to see the real world and the virtual world simultaneously. In augmented reality (AR) there are three characteristics that form the basis of the system, including a combination of real and virtual worlds,

interactions that take place in real time, and the last characteristic is the 6 forms of objects in the form of 3D or 4D models.¹⁵

5. The steps using Augmented Reality Application

Using an augmented reality (AR) application like Assemblr Edu involves several steps to ensure a smooth and effective experience for both educators and students.



Figure 2.1 Assemblr Edu Logo

Here's a general guide on how to use an AR application in an educational setting:

1. The augmented reality application, namely Assemblr Edu .
2. Go to download the Assemblr edu application via the playstore platform and create an account on Assemblr edu to be able to access the application features.

¹⁵Audina, Dwi Tina. "Perancangan Aplikasi Augmented Reality Pembelajaran Stimulasi Motorik Serta MPASI Bayi Berbasis Android." *Diploma thesis*, Universitas YARSI, (2021), p. 12.

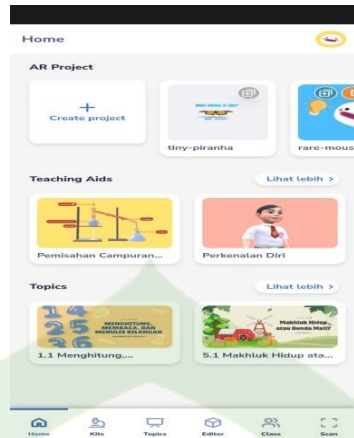


Figure 2.2 Login Menu

3. This is main menu from Asemblr Edu app and the features available on the application menu display.

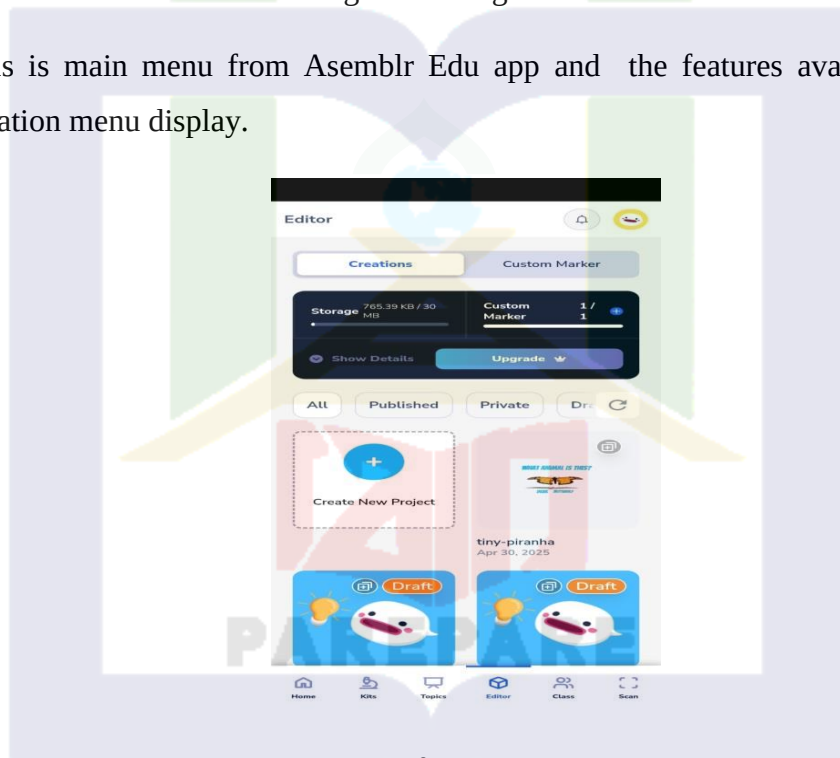


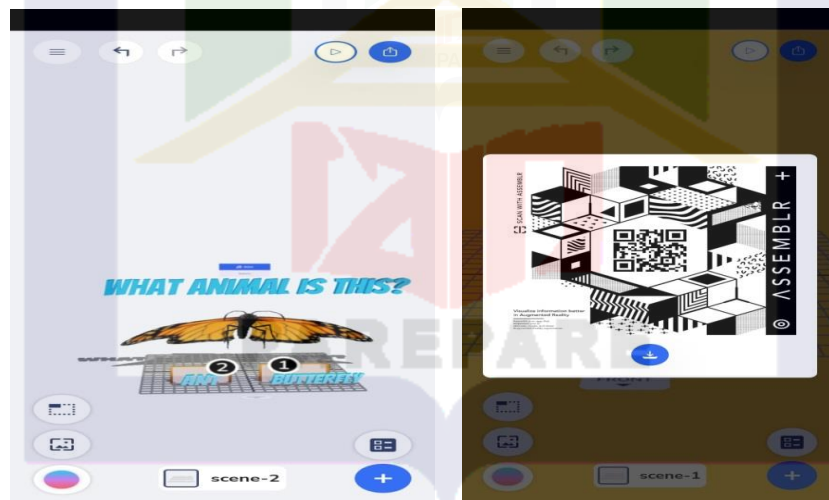
Figure 2.3 feature editor view

4. Introducing students this feature can create and select AR content that they want to use in learning, such as 3D models.



Figure 2.4 Classroom dashboard

5. After that you can create and join the classroom before sharing the game or quiz, this feature allows teachers to create and manage classes to make it easier to create their own AR content using templates, and to assign students to create AR content or work on projects.



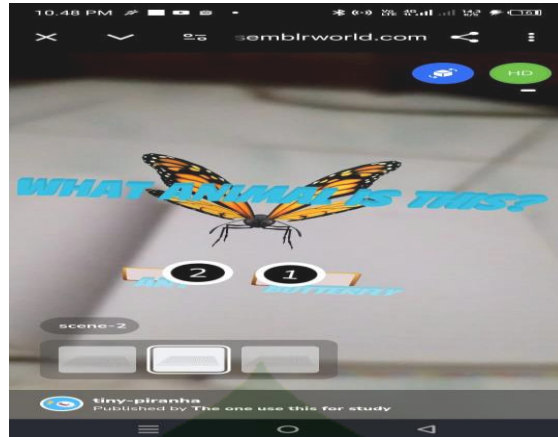
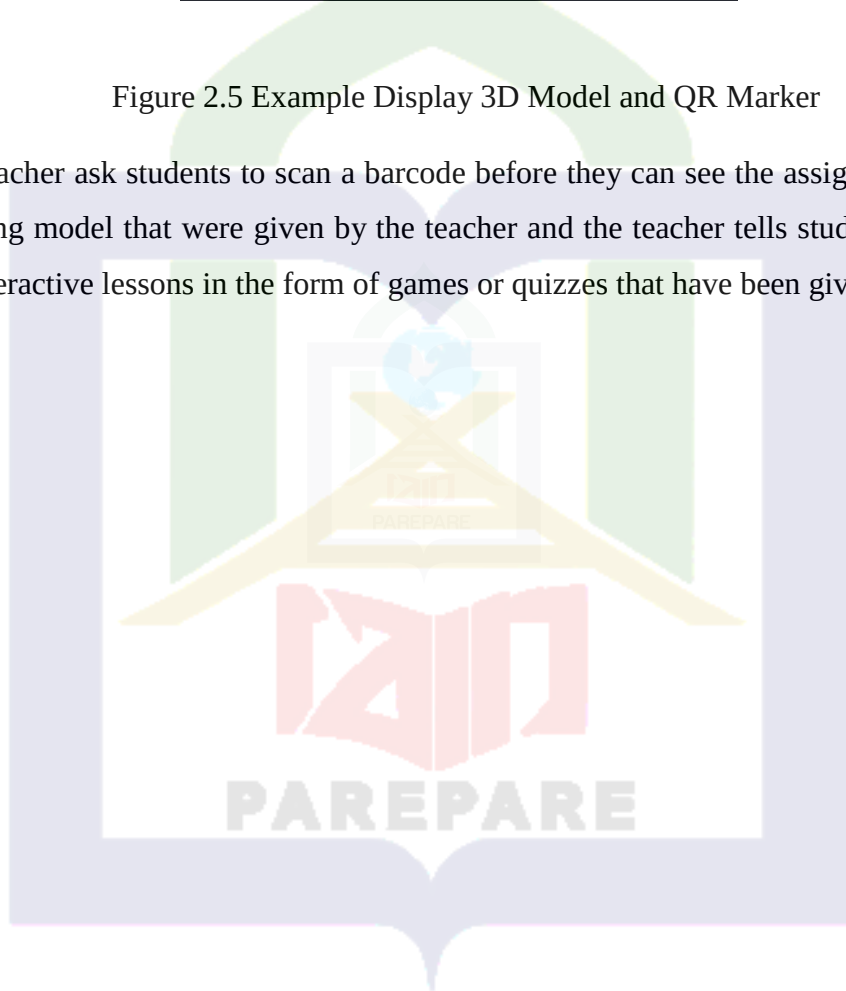


Figure 2.5 Example Display 3D Model and QR Marker

6. Teacher ask students to scan a barcode before they can see the assignment or 3D learning model that were given by the teacher and the teacher tells students to work on interactive lessons in the form of games or quizzes that have been given.



3. Concept of Vocabulary

a. Definition of Vocabulary

Vocabulary plays crucial function linguistic process acquisition. in Vocabulary is additionally a vital ability for acquiring to read, talk, compose and hear. While not ample vocabulary, individuals cannot communicate and categorical their feeling each in sort of spoken and written effectively. The additional people master vocabulary the more they speak, write, read and listen as they want.¹⁶

Vocabulary is all words that a person knows or uses in language and A key component of learning English. Vocabulary is a list or collection of words for a particular language or a list or collection of words that may be used by every speaker of that language¹⁷

b. Types of Vocabulary

Vocabulary learning is a crucial aspect of language acquisition, as a rich and varied vocabulary allows individuals to express thoughts and ideas more precisely and effectively. In the context of language learning, vocabulary acquisition not only expands communication skills, but also enhances understanding of texts and wider contexts. With the right approach, vocabulary learning can be done in a fun and interesting way, thus encouraging students to actively participate and interact in the learning process.

There are several types in vocabulary:

1) Receptive Vocabulary

Receptive (words recognized when heard or read). Refers to vocabulary that a person can understand when they hear or read. These are

¹⁶ Herri Susanto, et al, "An Analysys About Students' Troubles In Acquisition English Vocabulary," *Journey: Journal of English Language and Pedagogy* 4, no. 2 (2021): 1.

¹⁷ Putri Melinia Amanda, et al., "Improving the Vocabulary Mastery of the Second Year Students" of MAN 1 Barru by Using Youtube Videos', *Journal of Excellence in English Language Education*, 2.1 (2023), p. 64–72.

words that are recognized and understood, even though the individual may not use them in speaking or writing. Receptive vocabulary refers to words that learners recognize in listening and reading contexts, forming the foundation for understanding and processing language input. It is generally broader than productive vocabulary and includes passive understanding of words that may not yet be used in active communication.

2) Productive Vocabulary

Productive vocabulary (words used actively in speaking and writing). Productive vocabulary, on the other hand, includes words that learners can confidently produce in speech and writing. This type of vocabulary represents a higher level of mastery, as it requires retrieval and appropriate usage of words in varied contexts. It refers to the vocabulary that one can use in speaking or writing. These are words that are not only understood but can also be remembered and used confidently in active communication.

c. Kinds of Vocabulary

Vocabulary has been classified by some writer in different ways. In the following some classification are given active and passive vocabulary. The first is active vocabulary refers to items which the learner can use appropriately in speaking and writing, and it also called as productive vocabulary. The second is passive vocabulary to language items that can be recognized and understood in the context of reading and listening.

There two kinds of vocabulary, namely:

1) Active Vocabulary

Active vocabulary is made up of the words readily used and clearly understood by an individual when speaking and writing. Active vocabulary refers to vocabulary that the students have been thought or learn which they are expected to be able to use by the student.

2) Passive Vocabulary

A learner's passive vocabulary is the words that they understand but don't use yet. This can be compared with active vocabulary, which are words that learners understand and use in speaking or writing. Passive vocabulary refers to the words that learners recognize when they meet them but are likely not yet able to use.

d. Important of Vocabulary

Vocabulary is a basic element in language acquisition that plays an important role in communication skills. Through a good command of vocabulary, students can more easily understand the meaning of texts, express ideas appropriately, and interact effectively. Without adequate vocabulary, a person's language skills are limited, both in understanding and in language production. Therefore, vocabulary learning is a very important aspect in the language learning process.

Vocabulary is very important in learning English because by having many vocabularies someone can be easier to learn English. It is different when someone has limited vocabulary, they could not learn English better. For example if they have many vocabularies it would be easier to look for the information from English magazine or English newspaper and vice versa.¹⁸

Vocabulary knowledge is perhaps the most important factor when it comes to reading comprehension, both for native and non-native speakers. For example, if you sit down to read a book and you don't know the vocabulary used, you'll struggle to understand the meaning of the text. You might end up looking up the words in a dictionary, guessing the meaning of the words from their context, or you might simply give up and find something else to read.¹⁹

A language cannot be separated from vocabulary that is why the vocabulary is the most important aspect in acquiring a second language or foreign language.

¹⁸ Munir, "The Effectiveness of Teaching Vocabulary by Using Cartoon Film toward Vocabulary Mastery of EFL Students", *Journal of English Language Teaching and Linguistics*, vol. 1, no. 1, 2020.

¹⁹ Inobat Ilkhomovna Rasulova, "The Importance of Vocabulary In Language Learning And How To Be Taught", *Confrencea*, 2023, p. 1.

The purpose of teaching vocabulary is to help the students bring and the meaning from words sign, signal and symbols. The goal of teaching vocabulary, the students must be taught in many things about words and their meaning as well as the words themselves.²⁰.

e. Teaching vocabulary

Teaching vocabulary is a complex task because it includes of the meaning of the word. A good teacher should use appropriate techniques and enough practice for certain words, so that the objectives was be achieved. Concerning the appropriate techniques, a teacher must choose suitable method to teach vocabulary. The teacher has to teach not only the meaning of the words but also has to use appropriate method for each other aspect of language. Therefore, as an excellent teacher, they must be prepared with the latest methods. Teachers must be able to master these materials so that students can understand them and make them interested and happy in the teaching and learning process. in the classroom.

Vocabulary is the most obvious part of language, and it is also the first thing that applied linguists pay attention to. In order to achieve the goal of language learning, special attention must be paid to language learning. Vocabulary is one of the problems confronted by English language learners. Because of the limited vocabulary, the students cannot communicate to othesr clearly. With limited vocabulary anyone also have a limited understanding in terms of speaking, reading, listening, and writing²¹

Teaching English aims to develop four skills, namely: listening, reading, speaking, and writing. To support the development of the four language skills, English language components, vocabulary, grammar and pronunciation or spelling are also taught. In addition to constructing sentences, we not only need

²⁰ Tawali, T., & Kamarudin, K. (2022). Probing CAKE-Learn English Application toward Students' Motivation in Learning English Vocabulary at SMPN 2 Kediri. JUPE: Jurnal Pendidikan Mandala, 7(2).

²¹ Abdul Haris Sunubi, "Fishbone Model: Increasing Your Basic Vocabulary", STAIN PAREPARE, 5.3 (2017), p. 48–53.

correct grammar and pronunciation, we also need to choose the appropriate vocabulary.

Teaching vocabulary is very significant for the students because in the increasing of vocabulary extension. More vocabularies the learners have, more chances they are master the language. Teaching techniques are very helpful for teacher. It is the teachers' task to use appropriate technique of vocabulary teaching, and it does not mean that the teacher uses a certain technique. Techniques in teaching are very important in learning and teaching. Teachers should use appropriate skills to teach vocabulary to motivate and help students learn.

According to Allen there are many techniques in teaching vocabulary for the beginner:

1) Commands are useful in vocabulary classes

When we ask students to respond physically to oral commands which use the new words, the activity is very much like what happens when one is learning one's mother tongue. Children have frequent experience in obeying commands during the early years of learning the mother tongue. Those experiences appear to play an important part in the learning of vocabulary.

2) Using real objects for vocabulary teaching

For helping students understand the meaning of a word, we often find that a picture is useful, if it is big enough to be seen by all members of the class but real object are better than pictures whenever we have them in the classroom.

3) Other communication experiences for the classroom

There are many other ways to create a communication situation in the classroom. Suppose we have used a picture that shows a head with its various parts, hair, eyes, ears, nose, mouth. Those parts have been named in English. The students have printed the names in their notebooks with their copies of

the picture. Now the stage is set for an experience in which students use those English words to communicate.

4) The value of the pictures

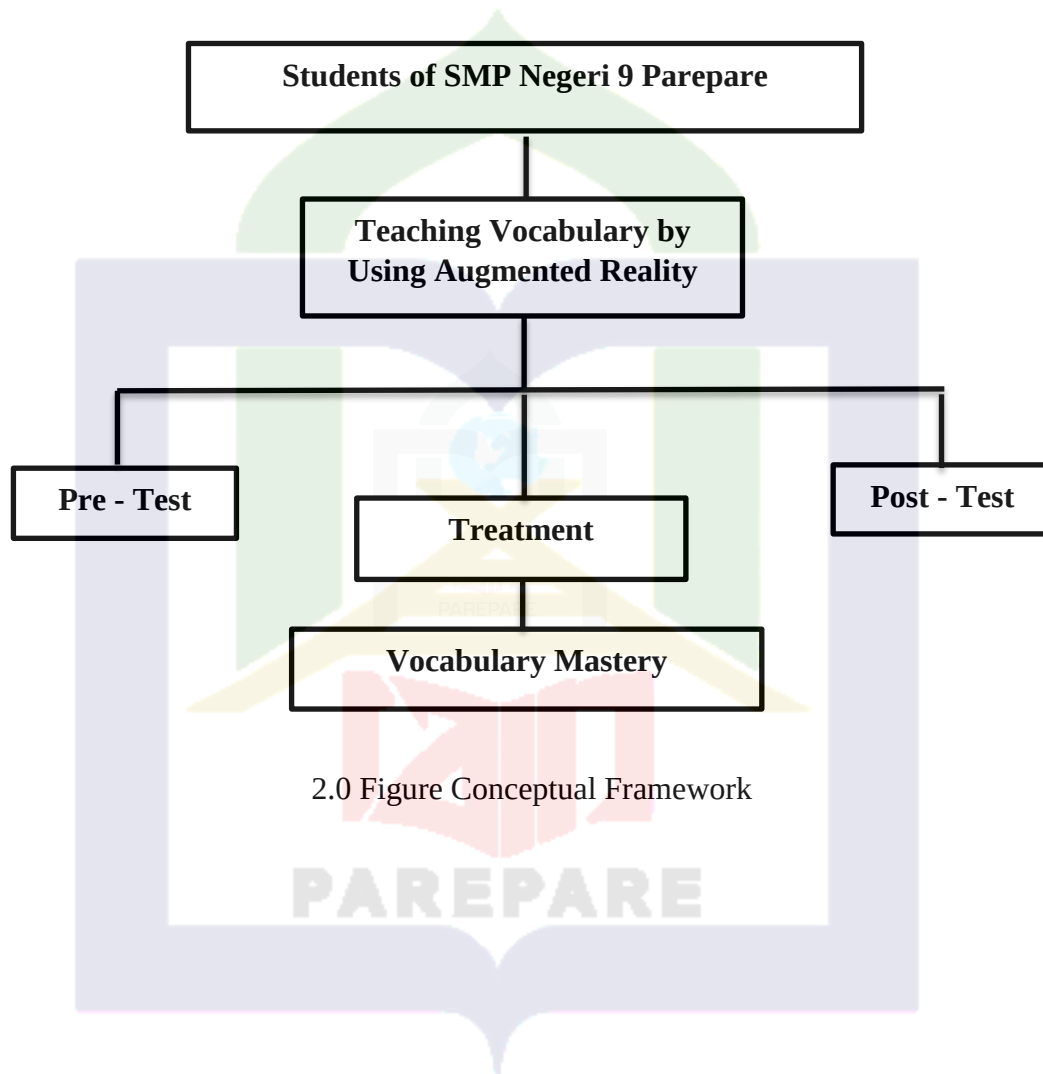
In several of the techniques which have been mentioned, pictures are made by students. Many teachers like to use pictures the students themselves have made such pictures have certain advantages, namely they cost little or nothing; they are available even in places where no other pictures can be found; they do not require space for storing and filing as pictures from other source do; when someone has drawn a picture of a scene he knows the meaning of the English words that the teacher used while talking about parts of his scene.²²

One of the popular modern methods used is the use of interactive learning apps that provide engaging features and allow users to improve vocabulary in various contexts. Assemblr Edu app is one of them, specifically designed to teach engaging learning with an interactive approach that involves vocabulary, exercises. With Assemblr Edu, students' are able to improve their vocabulary.

²² Virginia French Allen, "*Techniques in Teaching Vocabulary*". (England: Oxford University Press, 1983).

C. Conceptual Framework

The conceptual framework underlying of the researcher design is shown in the following diagram:



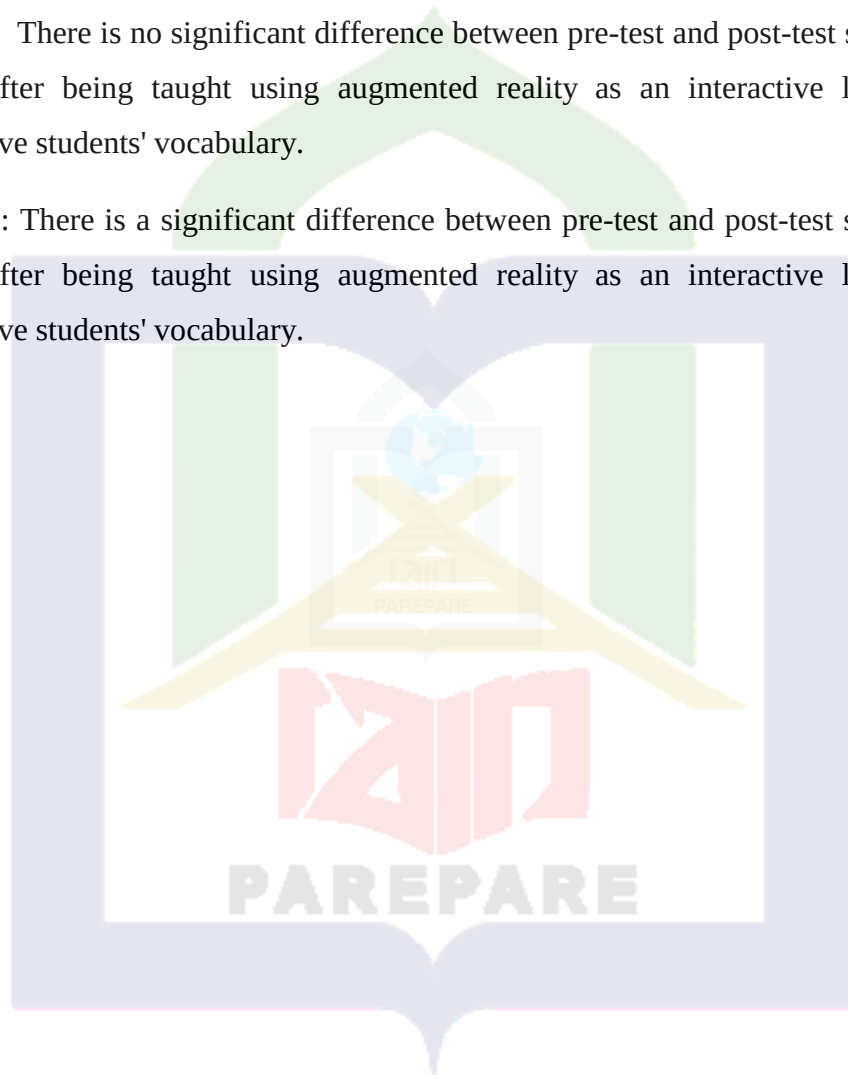
2.0 Figure Conceptual Framework

D. Hypothesis

Based on the previous related literature and the problem statement above, the researcher put forward the following hypothesis;

Ho : There is no significant difference between pre-test and post-test scores before and after being taught using augmented reality as an interactive learning tool improve students' vocabulary.

H1 : There is a significant difference between pre-test and post-test scores before and after being taught using augmented reality as an interactive learning tool improve students' vocabulary.



CHAPTER III

RESEARCH METHOD

A. Research Design

This research used pre-experimental research design by using pre-test and post-test with quantitative approach, because the researcher wants to establishes the possibility of an increase between the dependent and independent variables. The researcher is intended to know improving the students' vocabulary after the researcher use Assembl Edu application on VII Student SMP Negeri 9 Parepare. The researcher design that were be apply in this research can be illustrate as follows:

Table 3.1 Pretest-Posttest Design

$$E = O_1 X O_2$$

Description:

E : Pre-Ekperimental

O₁ : Pretest

X : Treatment

O₂ : Post-test²³

²³ Andrew Fernando Pakpahan, *et al., eds., Metode Penelitian Ilmiah* : Yayasan Kita Menulis (2021).

B. Location and Duration of the Research

The researcher is conduct at SMP Negeri 9 Parepare which located in JL. Bau Massepe No. 94 , Kampung baru, Kec. Bacukiki Barat, Kota Parepare Prov. Sulawesi Selatan, the research plans about 2 months including of analysis data. We selected this location based on our observations and because of its relevance to the research concept.

C. Population and Sample

1. Population

The population in this study is class VII of the 2024/2025 academic year. The number members is as shown in the table below

Table 3.2 Population of Research

No.	Class	Students		Total
		Male	Female	
1.	VII 1	14	15	31
2.	VII 2	14	14	29
TOTAL				59

Sources: Teacher SMP Negeri 9 Parepare

2. Sample

The sample is part of the number and characteristics possess by the population.²⁴ The sample of the research was the class VII 2 which consist of 31 students, the

²⁴ Sandu Siyoto and Ali Sodik, *Dasar Metodologi Penelitian* (Yogyakarta: Literasi Media Publishing, 2015).

criteria chosen by follows purposive sampling. According to Sugiyono, purposive sampling is a sample that meets the class criteria and this is also in line with the research objectives.²⁵

D. Instrument of Research

The term research instrument refers to the tools or methods used by researchers to collect data for their research. These instruments are essential for gathering information, analyzing phenomena, and ultimately answering research questions or testing hypotheses. This instrument was used as a test consisting of multiple choice.

There are four components presented in the analytic scoring rubric in vocabulary for example: meaning, accuracy, spelling, and pronunciation. The research uses analytical scoring rubric to analyze the data related to the students "Analytic scoring rubric vocabulary of the students".

1. The score classifies based on Four components²⁶

No	Component	Score 5 (Excellent)	Score 4 (Good)	Score 3 (Fair)	Score 2 (Poor)	Score 1 (Very Poor)
1	Meaning	The students identifies or define the word meaning with absolute accuracy based on the text or context.	The students knows the basic meaning of the word but shows slight inaccuracy when placing it in a contextual	The students is hesitant in determining the chosen answer or guess is partially incorrect..	The students completely misunderstands the word meaning or chooses the wrong definition	The students provides no answer or leaves the section completely blank

²⁵ Sugiyono, D. (2013). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D*.

²⁶ I. S. P. Nation. *Learning Vocabulary in Another Language*, 2nd ed. (Cambridge: Cambridge University Press, 2013), 52.

			sentence.		in the test.	
2	Word use/Accuracy	The students is very skilled at arranging word into coherent sentence with correct word order and accurate basic grammar.	The students arrange words into correct sentence with only minor errors in capitalization or punctuation.	the students word order and sentence structure are somewhat confusing or jumbled, but the meaning is still somewhat understandable.	The sentence structure is chaotic, completely incorrect, and fails to convey any logical meaning.	The students does not write or arrange any word/sentences at all (blank).
3	Spelling	The students writes or spells the English word perfect;y with no missing or misplaced letters.	The students spells the word correctly with only 1 minor letter mistake (e.g., writing monkey instead of monkey).	The students makes numerous spelling errors, making the target word difficult to recognize.	The spelling is completely incorrect, and the word does not resemble any recognized English word.	The student does not write any spelling attempt or leaves it blank.
4	Pronunciation	The student pronounces the word very clearly, fluently, and with the correct word stress.	The student pronounces the word clearly and comprehensibly, even though a local or mother – tongue accent is still strong.	The student hesitates or frequently mispronounces the word, making it quite difficult to understand.	The pronunciation is completely incorrect and fails to resemble the intended English word	The student remains silent or refuse to articulate the word when asked.

E. Procedure of Collecting Data

In Collecting data, the researcher used one kind of test as an instrument of collecting data. It is applied as the pretest and posttest. The procedure of collecting data is describe as follows:

1. Pre- Test

The pre-test is given before treatment. The researcher explained the purpose and provide an overview of what the pre-test assess, so students know what to expect. Then, the researcher gives a pretest to find prior knowledge of the students about vocabulary.

2. Treatment

The researcher gave the treatment to the students and some material that interesting to the students. Knowing the treatment of this research, the researcher conducted for four meetings and the students found some different them of the text after giving the pre-test, the researcher gave the treatment for four meetings. The treatment procedure is as follows:

a. First meeting

- a) The researcher provides pre-test questions to the students.
- b) The researcher explains the pre-test questions to the students before they answer the questions.
- c) The researcher explains and introduces the augmented reality application, its benefits, and its uses.
- d) The researcher gives a brief overview of the material for 15 minutes, including an explanation of the activities to be conducted over the upcoming meetings, and also mentions that students should bring smartphones or tablets to participate in the next session.

b. Second Meeting

- a) The researcher states that the material for today is a scavenger hunt using augmented reality.
 - b) The researcher informs students to prepare their smartphones for today's lesson.
 - c) The researcher performs a brief demonstration on how to operate the application, including scanning markers and exploring 3D models.
 - d) After that, students practice using the marker scanning feature directly, with supervision and guidance from the researcher to ensure they understand how AR functions.
 - e) Students are divided into several groups (containing 4-5 students).
 - f) Then, the researcher provides instructions and procedures for the interactive game, which is a scavenger hunt using augmented reality.
 - g) Next, the researcher distributes maps, clues, and worksheets (LKPD) for the scavenger hunt game.
 - h) Afterward, each group conducts the scavenger hunt around the classroom/school using AR to find markers and 3D models themed around animals, and they record their findings in the worksheet.
 - i) The teacher and students give feedback and reflect on the vocabulary learning process.
- c. Third Meeting
- a) The researcher is continue the material from the previous session if it is not yet completed.
 - b) The researcher announced that each group would then give a presentasion on what they had found during the scavenger hunt.
 - c) Each group explained what they had found during the scavenger hunt.
 - d) And all group member took turns explaining the vocabulary scavenger hunt.
 - e) Finally, the researcher summarizes and reflects on the learning process.
- d. Fourth Meeting

- a) Before starting the lesson, the researcher provides an example of a descriptive paragraph.
- b) Students are asked to draw an animal and write a simple descriptive sentence below it using the new vocabulary learned during the scavenger hunt and vocabulary challenges.
- c) After writing, students exchange their work with a seatmate in small groups. They read each other's work and provide constructive feedback on vocabulary usage, clarity, and suggestions for improvement.
- d) The researcher collects the students' work and feedback for further analysis. This encourages more effective interaction and boosts students' confidence when speaking in front of the class.
- e) For the final evaluation, the teacher provides feedback, shares conclusions, and reflects on the learning process.

3. Post-Test

The post-test assess whether the students have improved in their vocabulary knowledge after completing the treatment. The format of the post-test was similar to the pre-test.

F. Technique of Data Analysis

Data analysis techniques is the data which using to be analyzed and directed to answer the problem formulation has been determined, then analyzes the data using statistical methods that have been available.

1. Descriptive analysis

Method that serves to describe or give an overview of the object under study through data or samples that have been collected does not exist without doing analysis and making conclusions, this analysis focused on mean, standard deviation which focused on students improving vocabulary after the use of augmented reality

Treatment at SMP Negeri 9 Parepare and some of any test before conducting infrential analysis.

a) Scoring the students answer

The data analysis explained about descriptive data which follow some step below:

$$score = \frac{\text{Correct answer}}{\text{Total maximum score}} \times 100$$

b) Classifying the score students' classification as follow :

Table 2.3 Clasification student score

No	Score	Classification
1	80-100	Very good
2	66-79	Good
3	56-65	Fair
4	40-55	poor
5	<39	Very poor ²⁷

Sources : Arikunto, *Evaluasi Pembelajaran*

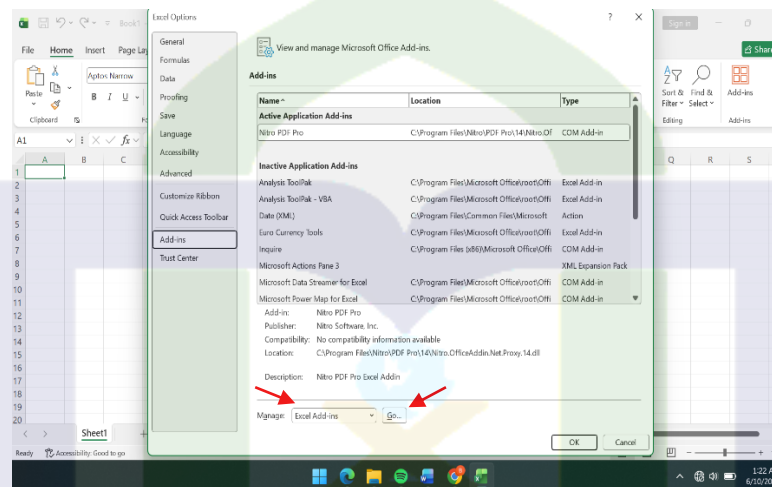
c) Scoring the Students Speaking Pre-test and Post-Test

To find out the mean score of the students test, the researchers would used the Excel application as follows:

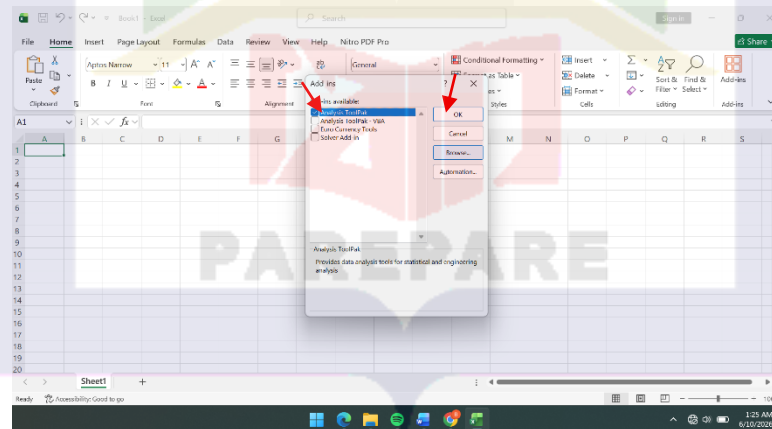
²⁷ Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan Edisi 3*, 3rd edn (Bumi aksara, 2021).

a. Display the analysis data menu

- 1) Open Ms. Excel, enter the pre-test and post-test values
- 2) Select File,
- 3) Select More then Options,
- 4) Select Add-Ins,
- 5) Select Manage: Excel Add-Ins and click Go,



6) Select Analysis ToolPak,

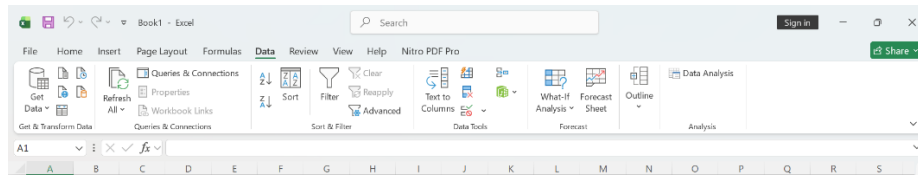


7) And then click OK.

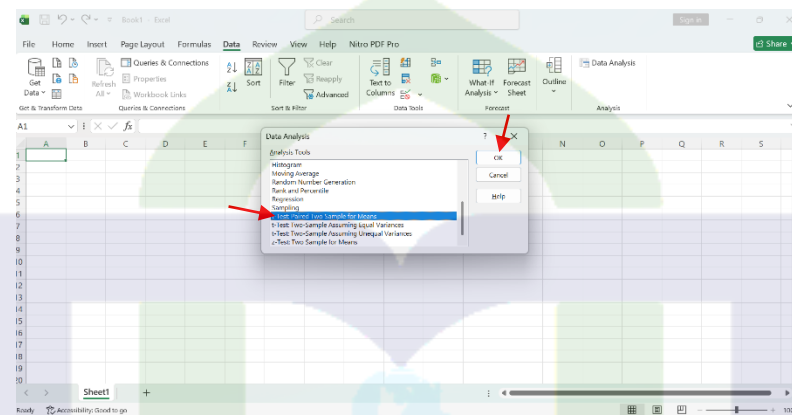
b. Running the Data Analysis

- 1) Select the Menu then to Data Analysis





2) Select t -Test : Paired Two Sample for Means then click OK

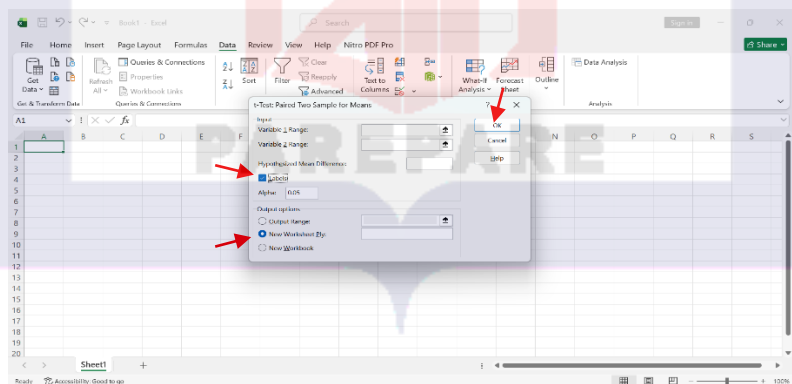


Input the data (score of pretest-posttest) by blocking the table, dan Enter

4) Checklist Label

5) Enter the desired degree of error. In generell, it is 5% or 0.05

6) And then select Whorksheets Ply



7) After that click OK.

c. Result Explanation

1) Mean : the mean score of the students' score at pretest and posttest

- 2) Observation : Sample, the total students observed.
- 3) t-Stat: It means the T-Test
- 4) t-Critical two-tail: It means the T-Table
- 5) Succesfull – Significancy : the treatment considered as successful, giving a significant increase, if the t-table is higher than the t-table.



CHAPTER IV

FINDING AND DISCUSSION

This chapter consisted of two sections, the section deals with the findings of the research and discussions of the research. The finding of the research cover description of the results of data collected through a test than can be discussed in the section below.

This chapter presents the findings and discussion of the study. this provides information about the results of data collection to see the improvement of students vocabulary mastery after being taught using augmented reality as an interactive learning tool in through the test can be discussed in the section below

A. Findings

The findings of this research presented systematically to provide empirical answer to the research question formulated in chapter I. This research also consist of the classification students pre-test and post-test. The pre-test is given before the AR treatment to determine the students' vocabulary mastery before carrying out the treatment. From the results of the post-test, the aim is to find out whether the using augmented reality as an interactive learning tool to improve students' vocabulary at SMPN 9 Parepare

1. Students' vocabulary before using augmented reality as an interactive learning tool at SMP Negeri 9 Parepare

Students' Vocabulary Before Using Augmented Reality at SMP Negeri 9 Parepare To establish a clear and empirical baseline of the students' initial language proficiency, the researcher administered a pre-test to class VII.2 at SMP Negeri 9 Parepare.

a. Limited Baseline and Low Pre-Test Performance

The empirical data collected from the pre-test revealed that the students' initial vocabulary mastery was generally low and limited. The majority of the students struggled to achieve the minimum mastery criteria. The distribution of the pre-test scores clustered heavily around the lower intervals, resulting in a low average (mean) score. This quantitative outcome indicates that before being exposed to interactive 3D media, the students possessed a minimal storage of English vocabulary, particularly regarding the specific nouns, verbs, or adjectives tested in this study.

b. Cognitive Barriers in Conventional Learning

The low performance on the pre-test directly reflects the limitations of the conventional or traditional learning methods that the students typically experienced before the intervention. Several key indicators observed from their test responses include:

Difficulty in Rote Memorization: Under conventional teaching, which heavily relies on textbooks and rote memorization, students demonstrated difficulty in retaining words. The pre-test results proved that traditional methods failed to create strong mental anchors, leading to low recall rates when students were tested.

High Dependence on Native Language Translation: The errors made in the pre-test indicated that students could not directly grasp the meaning of English words without translating them back into their native language (Indonesian) first. This extra cognitive step slowed down their comprehension and often led to semantic confusion.

c. High Error Rates in Spelling and Pronunciation Concepts

The pre-test papers also provided concrete evidence of structural vocabulary weaknesses. Students showed a high frequency of errors in spelling basic English words correctly. Furthermore, based on preliminary indicators, their unfamiliarity with the visual forms of the words correlated with a lack of confidence and accuracy in understanding how those words are phonetically structured or pronounced.

d. Indicators of Passive Engagement and Low Confidence

The quantitative data from the pre-test also indirectly reflected the students' passive state in the traditional classroom setting. The high number of unanswered (blank) items or highly repetitive incorrect guesses on the pre-test sheets served as strong indicators of low confidence. Without interactive or visual cues to stimulate their memory, students experienced high anxiety and a lack of motivation when confronted with abstract English vocabulary, leading to a suboptimal testing performance.

2. Students' vocabulary after using augmented reality as an interactive learning tool at SMP 9 Parepare

Students' Vocabulary after Using Augmented Reality at SMP Negeri 9 Parepare
To establish a clear and empirical baseline of the students' initial language proficiency, the researcher administered a pre-test to class VII.2 at SMP Negeri 9 Parepare.

a. Significant Improvement on the Post-Test

The empirical data collected from the pre-test established a baseline of the students' initial vocabulary proficiency. Following the implementation of the AR intervention, the post-test results indicated a substantial and statistically significant increase in the students' scores. The average score of the students on the post-test rose sharply compared to their initial performance on the pre-test. This noticeable shift statistically demonstrates that the introduction of Augmented Reality in the classroom environment effectively enhanced the students' overall vocabulary mastery.

b. Performance of AR Use in a Pre-Experimental Class

Since this study examined the same group of students over time, the internal comparison yielded several critical insights regarding the direct impact of the technology: Internal Ability Improvement (Gain Score): The transition from the pre-test to the post-test directly confirms that consistent exposure to AR technology

transformed the students' vocabulary understanding. Their linguistic competence tangibly progressed from a limited baseline to a much richer and more comprehensive vocabulary storage.

AR Intervention Effect: The departure from traditional, conventional learning methods—which the students routinely experienced prior to the study—to interactive, visual AR-based instruction successfully stimulated classroom engagement. The technology effectively facilitated the visualization of abstract words, making them concrete and easier to comprehend.

Learning Efficiency: The observation of the treatment class revealed a positive shift in classroom dynamics. The learning process became significantly more active, as students could interact directly with digital 3D objects. This active engagement enhanced learning efficiency and helped students retain new vocabulary more naturally.

c. Improved Spelling and Pronunciation

Beyond the quantitative score increase, the findings also showed specific improvements in the students' language skills. After practicing with the AR media, the students demonstrated greater accuracy in spelling newly acquired English words. Furthermore, they showed an improved ability to imitate and produce the correct pronunciation of the vocabulary items introduced during the treatment.

d. Memory Retention and Semantic Understanding

The cognitive impact of the Augmented Reality tool on students' semantic processing was evident in two major areas:

Long-Term Retention: Based on the delayed post-test results administered after a certain period, the students successfully retained the AR-learned vocabulary. This indicates that the visual and interactive nature of AR helps move new words from short-term memory to long-term mental retention, preventing the rapid forgetting typical of rote memorization.

Instant Word-Object Association: The integration of 3D objects allowed students to directly connect abstract English words to their visual representations. Consequently,

students could grasp the meaning of the words instantly without relying heavily on repetitive native-language translation (Indonesian).

e. Student Motivation and Cognitive Engagement

While motivation and engagement are psychological traits, their impacts were empirically reflected through the students' quantifiable performance and test behavior during the research:

Cognitive Engagement through Active Response: The quantitative leap from the pre-test to the post-test scores serves as an empirical indicator of high cognitive engagement during the AR treatment. The students' ability to absorb and master the target vocabulary within a limited intervention period demonstrates that they were highly attentive and actively processing the digital 3D inputs rather than being passive recipients.

Positive Learning Behavior and Low-Anxiety Performance: The significant reduction in incorrect or blank answers on the post-test quantitatively indicates a boost in student confidence and motivation. The interactive nature of the Augmented Reality media successfully stimulated a positive learning drive, transforming their initial hesitation in the pre-test into a decisive and high-performing task execution on the post-test.

3. Result the significant difference between the students' vocabulary before and after using the augmented reality at SMP Negeri 9 Parepare

This section is the third research question describes the results of data analysis before and after using augmented reality as an interactive learning tool to improve students' vocabulary in class VII.2 of SMPN 9 Parepare. To address this, a comparative analysis is performed on the pre-test and post-test score of the 31 students.

a. Students' Pre-test Scores

The Pre-test is conducted to measure the students' initial baseline vocabulary mastery before applying the Augmented Reality As an interactive learning media.

The researcher gave multiple-choice questions to students as a pre-test to determine students' vocabulary mastery. The results are shown in the following table.

Table 4.1 The Students, Score in Pre-test

No	Initials	Number of Correct Items	The Students Score	Classification
1.	ASP	13	65	Fair
2.	AWA	4	20	Very Poor
3.	AAB	11	55	Fair
4.	AH	8	40	Poor
5.	ADA	9	45	Poor
6.	AD	8	40	Poor
7.	AA	8	40	Poor
8.	BAF	7	35	Very Poor
9.	DMT	7	35	Very Poor
10.	FFH	12	60	Fair
11.	HQY	11	55	Fair
12.	IFA	13	65	Fair
13.	MRR	12	60	Fair
14.	MY	9	45	Poor
15.	MFA	12	60	Fair
16.	MHS	11	55	Fair
17.	MIP	15	75	Good
18.	MRN	11	55	Fair
19.	MZS	12	60	Fair
20.	NF	8	40	Poor
21.	NAK	8	40	Poor
22.	NR	12	60	Fair
23.	NA	10	50	Fair
24.	RI	6	30	Very Poor
25.	SJ	7	35	Very Poor
26.	SY	11	55	Fair
27.	SK	7	35	Very Poor
28.	SR	9	45	Poor
29.	SS	8	40	Poor
30.	UI	9	45	Poor

31	ZZT	7	35	Very Poor
	Total		1475	
	Mean		47.58	poor

(Data Score : The correct number in pre-test)

The table above shows the scores on the pre-test based on the criteria for Vocabulary mastery before applying Augmented Reality To find out the student's score in the pre-test by dividing the student's total score by the maximum score. Based on the pre-test results, the highest score achieved by students in Pre-test was 75, and the lowest score was 20. The data shows that the average score in the pre-test was 47.58 with a total score of 1475. From This analysis shows that almost of the 31 students' vocabulary mastery are still poor and most of them have very low scores. this indicates that prior to the intervention, the seventh-grade students' vocabulary mastery is relatively weak.

b. The Students Score in Post-test

After conducting four session of treatment using the augmented Reality as an interactive learning to improve students vocabulary In this post-test students are given the same Multiple Choice at the pre-test stage. After giving the post-test to the students, the researcher found out the results of the students' vocabulary based on the criteria for vocabulary mastery, before giving treatment. The results is presented in the following table:

Table 4.2 The Students, Score in Post-test

No	Initials	Number of Correct Items	The Students Score	
1.	ASP	12	60	Fair
2.	AWA	13	65	Fair
3.	AAB	13	65	Fair
4.	AH	14	70	Fair
5.	ADA	15	75	Good
6.	AD	15	75	Good
7.	AA	15	75	Good
8.	BAF	12	60	Fair
9.	DMT	15	75	Fair

10.	FFH	16	80	Very Good
11.	HQY	12	60	Fair
12.	IFA	14	70	Fair
13.	MRR	15	75	Fair
14.	MY	15	75	Good
15.	MFA	12	60	Good
16.	MHS	12	60	Fair
17.	MIP	15	75	Fair
18.	MRN	15	75	Good
19.	MZS	15	75	Good
20.	NF	12	60	Good
21.	NAK	12	60	Fair
22.	NR	13	65	Fair
23.	NA	13	65	Fair
24.	RI	15	75	Fair
25.	SJ	15	75	Good
26.	SY	12	60	Good
27.	SK	12	60	Fair
28.	SR	12	60	Fair
29.	SS	15	75	Fair
30.	UI	12	60	Good
31.	ZZT	13	65	Fair
	Total		2105	
	Mean		67.90	Fair

(Data Score : The students' score in post-test)

After qualifying, students get a score in the post-test based on the criteria of Vocabulary mastery the table above it can be seen about the value of students on the post test, to determine the score of students' vocabulary mastery on the post-test, the researchers divided the total score with the maximum score, In the table above we can know the frequency of classification of scores achieved by students and show the results of improving students Vocabulary after using augmented reality 3D Treatment. Based on the pre-test results, the highest score achieved by students in Pre-test was 80, and the lowest score was 60, the data showed that the average score achieved by students was 67.90. This means that students vocabulary mastery have

improved through the use of augmented reality treatment with a total score on the post-test was 2105. This proves that there is an increase in student scores on the post-test. From the post-test analysis, it was seen that almost 31 students had fairly good and good vocabulary mastery. In addition, the post-test also shows that there are no students who failed the classification.

c. The Rate Percentage of the Frequency of the Pre-test and Post-test

The researcher compared by calculating the percentage of students classification score namely very good, good, fair, poor and very poor. The result the rate percentage of the frequency of the pre-test and post-test were presented in the following table:

Table 4.3 Rate Percentage of the the Frequency of the Pre-test & Post-test

No	Classification	Score	Pre test	Pre test	Post test	Post test
1	Very Good	81- 100	0	0.0%	0	0.0%
2	Good	71 - 80	1	3.2%	13	41.9%
3	Fair	51- 70	12	38.7%	18	58.1%
4	Poor	31 - 50	17	54.8%	0	0.0%
5	Very Poor	0 - 30	1	3.2%	0	0.0%
	Total		31	100%	31	100%

(Data Source: The rate percentage of the frequency of pre-test)

As explained in the table, it shows the percentage of pre-test and post-test levels increased, the average score of students' vocabulary mastery before using augmented reality, most of the students were in the poor classification with a (17 students or percentage of 54.8%) and only 1 students (3.2%) achieved a good score. This shows that the students' vocabulary mastery in the pretest was low, because some students got very poor, fairly poor scores and there were also some students who got good scores.

While the average score of students vocabulary mastery after being given treatment using augmented reality as an interactive learning media, experienced a significant increase. In this post-test results show no students remained in the poor or very poor classification. Instead, 13 students scored 41,9% in the good category, and 18 students(58,1%) in the fairly category. This clear upward shift indicates that the interactive visual presentation of words significantly helped students cross the passing threshold. So it can be concluded that the percentage in the post-test, students were able to improve their Vocabulary mastery using augmented reality.

d. Hypothesis Testing

To find out Degree of Freedom (df) the researcher used the following formula :

$$Df = N-1$$

$$= 31-1$$

$$= 30$$

To go with data analysis, researcher took significant level (α) on 5% or 0,05, while the degree of freedom (df) was 30 to know the value of t- table. This t-table value of research was also be shown automatically on date analysis of Microsoft Excell. For a significant level (α) 5%, and df = 30.

e. Auto-calculation from Data analysis on Microsoft excell

The data found during the researcher were then processed automatically through the MS Excel application on the data analysis menu. The results of the autocalculation are presented in the following table:

Table 4.4 Auto-calculation from Data analysis of Microsoft Excel

	Pre-test	Post-test
Mean	47,58	67,90
Variance	154,7	49,62
Observations	31	31
Pearson Correlation	0,03	
Hypothesized Mean Difference	0,00	
Df	30	
T Stat	8,036	

P(T≤T) One-Tail	0,00	
T Critical One-Tail	1,68	
P(T≤T) Two-Tail	0,00	
T Critical Two-Tail	2,04	

There are 4 things that need to be considered in determining the success or failure of this research, namely Mean, observations (sample), t Stat (t-Test) and t Critical two-tail (t-Table). The research is said to be successful when there is a significant increase in the average value of the pre-test and post-test, this is indicated by the t-test value being higher than the t-table value. The t-table value is 2,04 while the t-test value is 8,036. meaning that the value of the t-test is greater than the t-table ($8,036 > 2,04$). In this way, it can be automatically concluded that there is a significant difference between students' vocabulary mastery before and after being given treatment through "Using Augmented Reality as an Interactive Learning Tool to Improve Students' Vocabulary at SMPN 9 Parepare. This shows that the alternative hypothesis (H1) was accepted and the null hypothesis (Ho) is rejected. So, it cannot be denied that "the effect of using augmented as an interactive learning tool" can improve Vocabulary mastery at SMPN 9 Parepare.

B. Discussion

The primarily objective of this research was to analyze the improvement in the English vocabulary of seventh-grade students through the strategic use of interactive learning tools at SMPN 9 Parepare. This chapter also presents data to measure the improvement in students' vocabulary using augmented reality. The data obtained from this pre-experimental study clearly demonstrate a positive change in students' ability to acquire, retain, and apply new vocabulary after receiving the targeted intervention.

1. Students' vocabulary before using augmented reality as an interactive learning tool at SMP Negeri 9 Parepare

The quantitative data collected during the pre-test stage clearly revealed that the students' initial vocabulary mastery before the implementation of Augmented Reality (AR) was low and fell heavily below the expected minimum mastery criteria. This baseline condition provides empirical evidence that the conventional teaching methods previously employed in the classroom yielded suboptimal results in fostering the students' language acquisition.

In the pre-intervention phase, vocabulary learning at SMP Negeri 9 Parepare was predominantly characterized by teacher-centered instruction, reliance on static textbooks, and rote memorization. Students were routinely required to memorize long lists of English words alongside their literal Indonesian translations. The low scores and high frequency of blank or incorrect answers on the pre-test can be analyzed through several foundational educational and cognitive theories:

According to the contemporary developments of John Sweller's Cognitive Load Theory, human working memory has an extremely limited capacity when processing novel information.²⁸ Conventional vocabulary learning which forces seventh-graders to digest abstract English words purely through textual chunks and rote translation imposes an excessive intrinsic and extraneous cognitive load. Because the traditional method lacks spatial-visual scaffolding, students had to expend too much mental energy trying to link abstract text symbols to abstract meanings. This cognitive overload led to rapid mental fatigue and poor information retrieval, as evidenced by the low scores on the pre-test.

Allan Paivio's Dual-Coding Theory posits that the human mind processes information through two separate channels: a verbal channel (words, text) and a non-verbal/visual channel (images, shapes). Modern educational psychology applications of this theory reaffirm that text-only presentation compromises optimal memory

²⁸ John Sweller, Jeroen J. G. van Merriënboer, and Fred Paas, "Cognitive Architecture and Instructional Design: 20 Years Later," *Educational Psychology Review* 31, no. 2 (2019): 261–292.

pathway configuration.²⁹ Traditional vocabulary teaching at the school relied almost exclusively on the single verbal channel (English words mapped to written Indonesian meanings). By ignoring the visual channel, the conventional method failed to build interconnected "cognitive anchors" in the students' brains. The pre-test results empirically demonstrated that learning via a single textual channel results in weak memory traces, making it difficult for students to recall words accurately under test conditions.

In the modern framework of David Ausubel's educational theory, for learning to be truly "meaningful," new information must be systematically relatable and logically anchored to the student's existing cognitive structures.³⁰ The conventional approach used prior to the intervention forced rote learning, where vocabulary items were treated as isolated, arbitrary facts. Because the text-heavy approach failed to create an immediate, relatable link to real-world objects, the vocabulary was easily forgotten, resulting in the high failure and omission rates observed on the pre-test sheets.

2. Students' vocabulary after using augmented reality as an interactive learning tool at SMP 9 Parepare

The second research question aimed to how vocabulary after using augmented reality as an interactive learning tool at SMP 9 Parepare. The quantitative data gathered from class VII.2 through a pre-experimental design specifically comparing pre-test, post-test, and delayed post-test scores yielded significant insights into the linguistic and cognitive benefits of this technology.

1. Significant Improvement and Gain Scores

The empirical data collected from the pre-test established a low baseline of the students' initial vocabulary proficiency, where many students faced difficulties due to conventional, static learning methods. However, following the AR intervention,

²⁹ Thomas L. Good and Alyson L. Lavigne, *Looking in Classrooms*, 11th ed. New York: Routledge, (2018), 142.

³⁰ Jeanne Ellis Ormrod, *Educational Psychology: Developing Learners*, 10th ed. (Boston: Pearson, 2020), 218.

the post-test results indicated a substantial and statistically significant increase in the students' scores. The sharp rise in the average score and the positive gain scores confirm that consistent exposure to AR technology transformed the students' internal linguistic competence, moving them from a limited baseline to a much richer vocabulary storage.

This quantitative leap aligns perfectly with Cognitive Load Theory in Multimedia Learning, which suggests that learning is optimized when visual and verbal channels are activated simultaneously without overloading the working memory. Modern meta-analytic evidence by Yang and Zhang 2024 confirms that AR integration in EFL classrooms consistently produces moderate-to-large positive effects on overall language gains compared to non-AR treatments.³¹ By superimposing 3D virtual objects into the real environment of SMP Negeri 9 Parepare, the technology lowered the students' cognitive burden during vocabulary acquisition, resulting in enhanced learning efficiency and high performance.

2. Spelling and Pronunciation

Beyond the overall score increase, the findings revealed specific qualitative improvements in the students' language skills, notably in spelling and pronunciation accuracy. After practicing with the AR media, class VII.2 demonstrated greater precision in spelling newly acquired English words and showed an improved ability to imitate and produce correct pronunciation.

This sub-skill mastery can be theorized through the lens of Multimodal Input Processing.³² The multi-sensory nature of mobile AR—which simultaneously pairs textual spelling, high-fidelity audio pronunciation, and 3D visual models—strengthens the brain's phonological loop and orthographic mapping. When students

³¹ M. Yang and X. Zhang, "Is Augmented Reality Truly Effective for Foreign Language Learning? A Meta-Analysis of Recent EFL Empirical Studies," *Computer Assisted Language Learning* 37, no. 4 (2024): 789–815.

³² A. Rachmawati and S. Lestari, "The Power of 3D Visualization: Enhancing Young Learners' English Vocabulary Retention Through Mobile Augmented Reality," *Journal of English Language Teaching and Applied Linguistics* 9, no. 1 (2025): p45–58.

interact with an AR object, they receive immediate, multi-layered phonetic and visual feedback. This multi-sensory reinforcement allows them to internalize the correct mechanical forms (spelling and sound) of a word much more effectively than reading flat letters from a traditional textbook.

3. Memory Retention and Semantic Understanding

The cognitive impact of the AR tool was prominently evident in the students' semantic processing, characterized by instant word-object association and long-term retention. The integration of 3D objects allowed students to directly connect abstract English words to their visual representations without relying on repetitive native-language translation (Indonesian). Furthermore, the delayed post-test confirmed that students successfully retained the vocabulary over time, proving that AR facilitates the transition of data from short-term to long-term memory.

This phenomenon strongly supports Paivio's Dual-Coding Theory updated for the digital era. Recent studies highlight that AR media facilitates "contextual internalization" because it anchors abstract lexical items to concrete digital artifacts.³³ Rather than translating an English word back to Indonesian mentally, the 7th-grade students mapped the English word directly onto the 3D visual concept. This instant association creates double cognitive paths (verbal and visual) in the brain, preventing the rapid forgetting typical of rote memorization and ensuring long-term retention.

4. Motivation and Cognitive Engagement

While motivation and engagement are internal psychological traits, this study empirically captured them through the students' quantifiable test behavior. The quantitative leap within a limited intervention period serves as an indicator of high cognitive engagement. Furthermore, the significant reduction in incorrect or blank answers on the post-test quantitatively demonstrated a boost in confidence,

³³ Q. Wu, Y. Jiang, and X. Chen, "The Linguistic and Affective Outcomes of Augmented Reality in EFL Classrooms: A Comprehensive Meta-Analysis," *Educational Technology Research and Development* 72, no. 3, (2024).

transforming their initial hesitation into a low-anxiety, high-performing task execution.

This behavioral shift is heavily backed by Krashen's Affective Filter Hypothesis modified for technology-enhanced language learning (TELL).³⁴ Gamified AR tools (such as the AR scavenger hunt) create an immersive and interactive environment that significantly lowers students' anxiety and boredom. When the affective filter is down, students become highly receptive active responders rather than passive recipients. The reduction in blank answers on the post-test proves that the interactive AR media stimulated a positive learning drive, allowing the 7th-grade students at SMP Negeri 9 Parepare to display their true linguistic potential confidently.

3. The significant difference between the students' vocabulary before and after using the augmented reality at SMP Negeri 9 Parepare

The third research question aimed to critically evaluate the empirical nature and statistical significance of the students' English vocabulary development, from the pre-test through the post-test. The descriptive lexical data collected using the research instrument clearly and unequivocally demonstrate that there has been a significant increase in vocabulary among the seventh-grade students at SMPN 9 Parepare.

To The class's average score showed a remarkable increase: it shot up from a very low baseline score of 47.58 which theoretically falls into the Poor category to an encouraging post-intervention average of 67.90, clearly placing the class at the Fairly level. More importantly, a detailed analysis of the frequency distribution confirms that the severe vocabulary deficit has been completely resolved: after the intervention, 0% of the students remained in the "Poor" or "Very Poor" categories. On the contrary, there was a significant improvement: 41.9% of the students immediately fell into the "Good" category (with a score between 71 and 80). This

³⁴ F. Rahmadani, S. Syahrial, and R. Pratama, "Utilizing Interactive Augmented Reality Media to Boost Junior High School Students' Vocabulary Mastery," *Indonesian Journal of English Education* 11, no. 2, (2024) 210-215.

quantitative shift demonstrates that the intervention not only benefited high-performing students but also succeeded in pulling lower-performing students out of their lexical stagnation, allowing the entire class to expand its mental lexicon uniformly.

To rule out the possibility that this increase in vocabulary proficiency was merely the result of chance, a snapshot in time, or simply familiarity with the test format, the raw lexical data were analyzed using a strict paired t-test for two samples, calculated using Microsoft Excel. The computational analysis yielded an obtained t-value of 8.036, which far exceeds the critical t-table value of 2.042, calculated with a standard degrees of freedom of 30 ($Df = 31 - 1$) and a significance level of 5% ($\alpha = 0.05$). Because the calculated t-value far exceeds the critical threshold ($8.036 > 2.042$), the probability value is nearly zero ($P < 0.05$), which means that the null hypothesis (H_0) is convincingly rejected and the alternative hypothesis (H_1) is officially accepted.

These statistical results provide irrefutable empirical evidence that the students have made very significant and tangible progress in the development of their overall vocabulary. The fairly large difference between obtained t-statistic and t-table demonstrates that this change in scores reflects solid cognitive growth in the language acquisition process, rather than merely a statistical anomaly, indicating that the students have successfully internalized the semantic structures targeted by the instruction.

From a psycholinguistic perspective, this rapid increase in vocabulary proficiency aligns with Stephen Krashen's affective filter hypothesis.³⁵ In English as a Foreign Language (EFL) classes in middle school, young students often exhibit high levels of anxiety, low self-confidence, and immediate mental blocks when forced to memorize unfamiliar words, which reinforces their "affective filter" and hinders deep processing of the language input. Contextual and highly collaborative

³⁵ Stephen Krashen, *Principles and Practice in Second Language Acquisition* (3rd ed.; audio/print reprint; Pergamon Press, 2009), p. 31.

word games such as a vocabulary-focused Scavenger Hunt effectively reduce students' levels of anxiety and stress.

By transforming the learning experience from a traditional, passive method based on rote memorization into an active, discovery-based ecosystem, students' emotional barriers are overcome. As a result, the target vocabulary is absorbed naturally, allowing the brain to seamlessly integrate these new words into its cognitive structure, which ultimately leads to better performance on the final productive assessment.

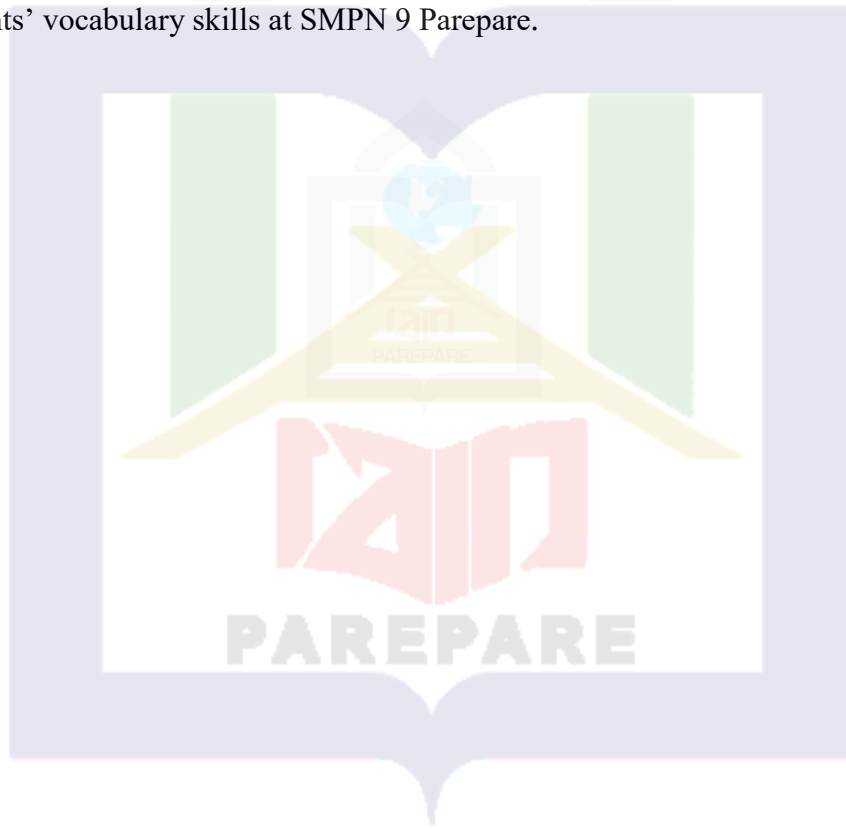
Furthermore, this successful development of vocabulary is strongly supported by empirical research conducted by Santos et al., who, through comparative tests, have demonstrated that dynamic and multisensory language instruction enables students to achieve significantly higher scores in vocabulary improvement and to demonstrate a greater ability to retain word structures compared to students who learn exclusively in a traditional classroom setting.³⁶ Dual encoding of verbal cues and corresponding visual representations ensures that words are stored via different cognitive pathways, making the newly acquired vocabulary more resistant to forgetting.

Finally, the extensive empirical and statistical data collected in this study confirm that seventh-grade students have achieved a substantial, significant, and lasting improvement in their command of English vocabulary, demonstrating that their ability to understand and use terms in a foreign language has increased significantly in this era of digital education.

Although this Augmented Reality learning model has received positive feedback from students and provided significant improvements, it still has several limitations that need to be addressed. One of its limitations is the need for more time, as the learning process involves several strategic stages, such as High Hardware

³⁶ M. E. C. Santos, A. Taketomi, T. Yamamoto, G. G. G. Rodrigo, J. Sandor, and H. Kato, "Augmented Reality Learning Objects for Vocabulary Acquisition," *IEEE Transactions on Learning Technologies* 7, no. 1 (2014) 105–117.

Requirements: It requires devices with cameras, sensors, and ample memory (RAM) to process 3D objects in real time. ,Lengthy Production Process: The AR creation process begins with planning (selection of 2D/3D objects), asset placement (marker areas), through to adding annotations and interactivity, and finally the Risk of a Digital Divide: Not all students have access to adequate devices or internet at home. Furthermore, the success of this model heavily depends on the teacher's skills in providing guidance and managing group discussions. Despite these limitations, with thorough planning, effective time management, and consistent teacher guidance, Interactive Teaching can still serve as an effective learning model to enhance students' vocabulary skills at SMPN 9 Parepare.



CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

This chapter consists of two parts, namely conclusions and suggestions. The conclusion discusses the conclusions of the research results and suggestions discuss some ideas given by the researcher.

1. Based on the result of this study, the researchers concluded that the use of Augmented Reality (AR) as an interactive learning tool helps seventh-grade students at SMPN 9 Parepare improve their vocabulary. The application of this technology transforms passive rote memorization of vocabulary into an active, contextual, and collaborative learning experience, allowing students to immediately grasp meanings through 3D models. It is also explained that, although students still encounter minor difficulties in mechanical areas such as spelling and sentence structure, the AR app effectively reduces their cognitive load and stimulates high learning motivation.
2. The results of the data analysis also demonstrate a significant difference in students' vocabulary proficiency before and after instruction using Augmented Reality. This is evident from the striking score progression, in which the class average increased from a pre-test score of 47.58 (classified as unsatisfactory) to a post-test score of 67.90 (classified as satisfactory/good). This improvement is further supported by statistical calculations, in which the t-test value (8.036) is significantly higher than the t-table value (2.042) at a 5% significance level.
3. This study concludes that the Augmented Reality learning model is successful in improving students' vocabulary mastery. So according to the theory, utilizing Augmented Reality as an interactive pedagogical tool is

effective in encouraging better English vocabulary acquisition and active engagement for grade VII students at SMPN 9 Parepare.

A. Suggestion

As a result of using the Augmented reality learning, the researcher would like to provide some suggestions for English teachers, students and further researchers:

1. For English Teachers:

- a. English teachers are encouraged to incorporate the Augmented Reality (AR) learning model into the teaching process, particularly when teaching vocabulary, to help students easily understand the meaning of words.
- b. English teachers should maximize their guidance of students during instruction, particularly regarding the use of equipment and checking spelling during AR activities.
- c. English teachers should be creative when teaching using the Augmented Reality model, as they can design various interactive learning tools (such as with Assemblr Edu) to engage and motivate students more in the classroom.
- d. English teachers should be creative in presenting the lesson material, for example by devising fun word games or scavenger hunts to reduce students' anxiety and their reliance on translation tools.

2. For Students:

- a. Students are expected to expand their vocabulary and increase their active engagement by using the interactive Augmented Reality learning model.

3. For future researchers:

- a. The results of this study are expected to serve as a reference for future researchers conducting similar research on educational technology or vocabulary and its assessment.
- b. The results of this study can be used as a supplementary reference or as a basis for follow-up research from a different perspective, such as exploring other skills or overcoming hardware limitations, for future researchers.



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APPENDICES

Appendix 1. Instrument of Pre-Test and Post-Test

	KEMENTERIAN AGAMA REPUBLIK INDONESIA INSTITUT AGAMA ISLAM NEGERI PAREPARE FAKULTAS TARBIYAH Jln. Amal Bakti No. 8 Soreang, Kota Parepare 91132 Telepon (0421) 21307, Fax. (0421) 24404 PO Box909 Parepare 91100,website: www.iainpare.ac.id, email: mail@iainpare.ac.id
VALIDASI INSTRUMEN PENELITIAN SKRIPSI	

After examining the drafting of the student's thesis proposal by the title, it is essentially demented to have fulfilled the eligibility to be used in the research concerned.

Name:

Class:

Date:

PRE-TEST - 20 QUESTIONS

Instruction: Choose the correct answer! And write your answers clearly in the space provided

1. The feet of some animals are called ____.



- a) shall
- b) eyes
- c) paws
- d) feathers

2. Birds are covered in _____.



- a) tentacles
- b) claws
- c) tail
- d) feathers

3. Penguin is a ... bird.

It cannot fly, but it can ... and dive in water.

It usually eats



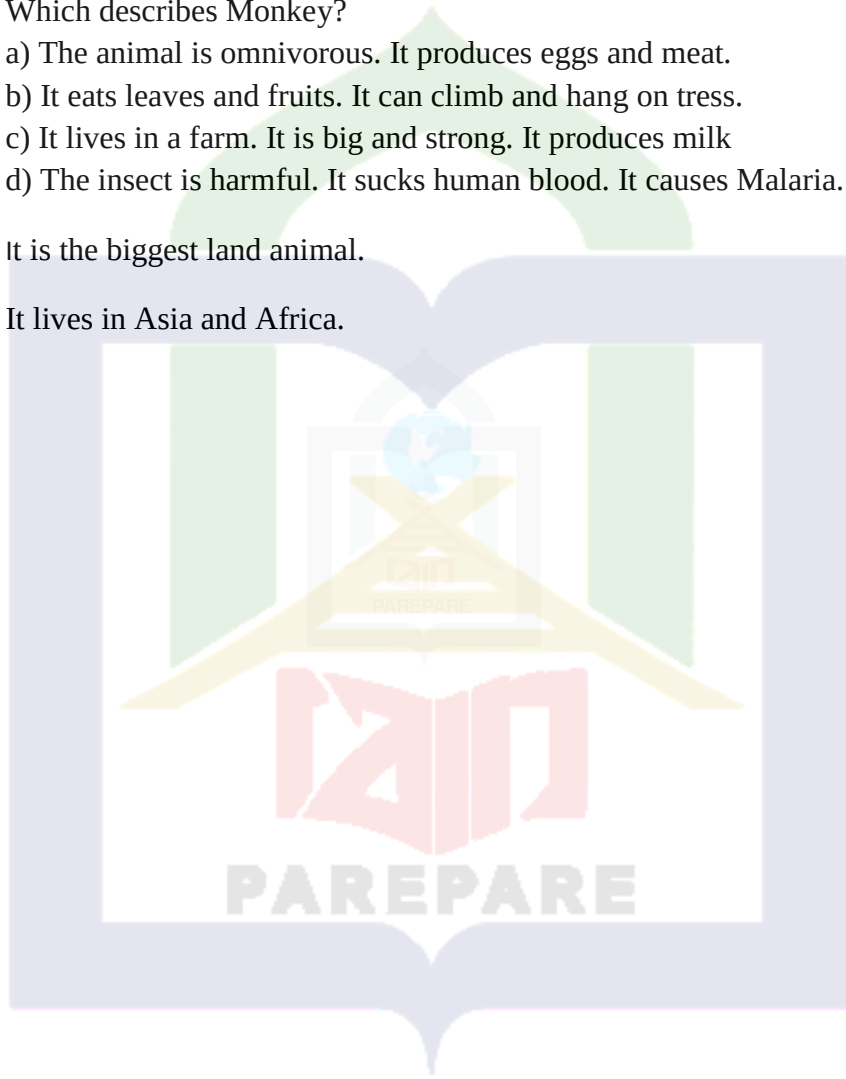
- a) Small – Walk – Grass
- b) Big – Swim – Fish
- c) Big – Fly – Meat
- d) Long – Run – Fruit

4. Which one the sentence describe this animal?



- a) It has wide ears and strong legs
- b) It has big mouth and big body
- c) It lives in a farm. It is big and strong. It produces milk
- d) It has many black and white stripes on its back

5. Which describes zebra?
- a) It is a big bear from China. It has black and white fur.
 - b) It lives in Africa. It is like a horse with black and white stripes.
 - c) The black and white bird lives in the South Pole. It eats fish.
 - d) The animal lives in water. It can swim and dive deeply.
6. Which describes Monkey?
- a) The animal is omnivorous. It produces eggs and meat.
 - b) It eats leaves and fruits. It can climb and hang on trees.
 - c) It lives in a farm. It is big and strong. It produces milk
 - d) The insect is harmful. It sucks human blood. It causes Malaria.
7. It is the biggest land animal.
- It lives in Asia and Africa.



It has a long trunk to hold something.

The ears are wide and the tail is short.

What animal is it?

- a) Hippopotamus
- b) Elephant
- c) Rhinoceros
- d) Giraffe

8. It is a small insect.and has a pair of wings

It often lives on open food, trash cans, and rotting meat

It flies around trash and meat to lay eggs

What animal is it?

- a) fly
- b) bee
- c) butterfly
- d) beetle

9. Look at the animal.



Which describes the animal?

- a) It is long and strong. It crawls on the forest of Africa.
- b) It is a very tall animal. It has a long neck. It has spots on its fur
- c) The animal is large and strong. It lives in the deep sea.
- d) It is a strong and fast animal. It runs fast to hunt the preys.

10. "I have a pet name tung tung sahur. He's crazy about eating carrots. He's has long ears. He's got white long fluppy hair".

What animal has been described?

- a) Rabbit
- b) Cat
- c) Monkey
- d) Dog

11. It eats bamboo. It has black and white color. It is a wild animal. It lives on land, especially in China. What animal is it?



a)



b)



c)



d)

12. Rhinoceros is a big and ... mammal.

It ... in forests in Asia and Africa.

It has thick skin and ... on its nose

- a) Fast - Runs - Fur
- b) Slow - Walks - Spot

- c) Tall - Eats - Feather
- d) Strong - Lives - Horn



- 13.
- a) An adorable brown Butterfly
 - b) A brown adorable Butterfly
 - c) A brown Butterfly adorable
 - d) An adorable Butterfly brown



- 14.
- a) A brown scorpions dangerous
 - b) A dangerous Brown scorpions
 - c) A dangerous scorpions brown
 - d) A green of dangerous snake

15. When I went to the Surabaya zoo, I saw an owl. This owl is unique and amazing bird. It is a heavy bird and has a large head and an oval face. The owl has round eyes. Its eyes are large and are locked in the skull. It means the eyes cannot rotate independently. They are typically solitary. Though the owl is typically solitary, it also lives in a group. The owl hunts mostly small mammals, insects and other birds.

What is owl's food?

- a) Flower
- b) Insects
- c) plant
- d) big mammals

16. When I went to the Surabaya zoo, I saw an owl. This owl is unique and amazing bird. It is a heavy bird and has a large head and an oval face. The owl has round eyes. Its eyes are large and are locked in the skull. It means the eyes cannot rotate independently. They are typically solitary. Though the owl is typically solitary, it also lives in a group. The owl hunts mostly small mammals, insects and other birds.

What is the purpose of the text? It is to ...

- a) show the steps to catch an owl. entertain the reader about the owl's head.
 - b) entertain the reader about the owl's head
 - c) describe specific animal namely an owl in the zoo
 - d) tell the story about an owl that spreading in the society
17. There is a big tree in front of my house. There are many birds in the tree. The birds are small. Their feathers are black and brown. They make nests in the tree. They fly here and there. They make songs by chirping in the morning. I like the sounds. The birds sometimes fly down and walk on the ground. I do not catch them. I let them live in the tree so I can enjoy their chirping every morning.

What is the color of the birds ? ...

- a) black and white
 - b) black and brown
 - c) brown and white
 - d) white and yellow
18. There is a big tree in front of my house. There are many birds in the tree. The birds are small. Their feathers are black and brown. They make nests in the tree. They fly here and there. They make songs by chirping in the morning. I like the sounds. The birds sometimes fly down and walk on the ground. I do not catch them. I let them live in the tree so I can enjoy their chirping every morning.

Where do the birds live ? ...

- a) in the winter's house
- b) in the birds' house
- c) in the ground
- d) in the tree

19. Arrange the jumbled words to make good sentence.

there-the-are-flies-on-floor-some

- a) there some flies on the floor
- b) there are the floor on the flies some
- c) there are some flies on the floor.
- d) are there some flies on the floor ?

20. Arrange the jumbled words to make good sentence.

river-there-the?-are-many-fish-in

- a) there are many fish in the river
- b) there are fish in the many river
- c) are there many fish in the river ?
- d) there are the river in the fish

Name:

Class:

Date:

POST-TEST- 20 QUESTIONS

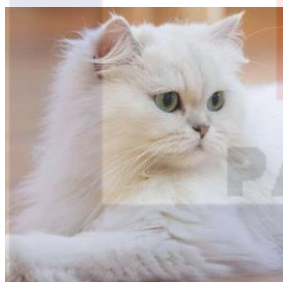
Instruction: Choose the correct answer! and write your answers clearly in the space provided

1. The feet of some animals are called ____.



- a) tail
- b) claws
- c) paws
- d) feathers

2. cat are covered in ____.

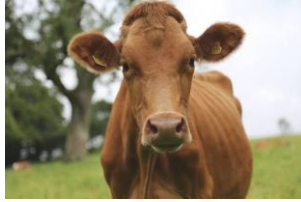


- a) scales
- b) shell
- c) hair
- d) feathers

3. cow is a ... mamamals

It cannot climb, but it can ... and swim.

It usually eats



- a) Small – Walk – Grass
- b) Big – Swim – Fish
- c) Big – Walk – Grass
- d) Long – Run – Fruit

4. Which one the sentence describe this animal?



- a) It has long tailed and strong legs to climb the tree.
- b) It has long trunk and big body.
- c) It lives in the sea. It has large eyes and eight arms.
- d) It lives in Africa. It has black and white stripes on its back.

5. Which describes Butterfly?

- a) The animal lives in water. It can swim and dive deeply.
- b) It lives in Africa. It is like a horse with black and white stripes.
- c) It lives in grassland. It is flying insect and have a beautiful wings.
- d) It is a big bear from China. It has black and white fur.

6. What is the primary function of an Elephants trunk?

- a) To help it run fast
- b) To smell and drink water
- c) To protect its ears from insects
- d) To stand up tail

7. It is among the smallest land animals.

It lives in underground and have structured colonies.

It will attack when they feel threatened

They are primarily omnivores

What animal is it?

- a) Ants
- b) Rabbit
- c) Spider
- d) Worm

8. It is a small animals.

It often lives on plants and tree.

It always carries a spiraled shell on its back

What animal is it?

- a) Worm
- b) Snail
- c) Bee
- d) Beetle

9. Look at the animal.



Which describes the animal?

- a) It is a very small animal. It always carries a shell on its back.
- b) It has spots on its fur It is long ang strong. It crawls on the forest of Africa.
- c) The animal is very large and strong. It lives in cold seas.
- d) It is a strong and fast animal. It runs fast to hunt the preys.

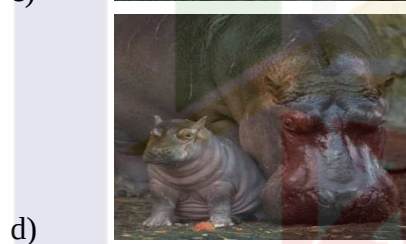
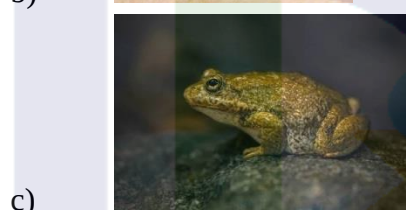
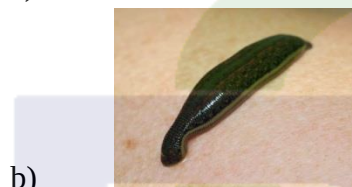
10. "A bear is a large, strong, and sometimes dangerous mammals.".

Which word in the sentence describes the animal's size?

- a) strong

- b) large
- c) dangerous
- d) mammals

11. It eats insect. It has big eyes and moist skin, It can jumping and swimming. It lives on lakes, rivers, and swamps. What animal is it?



12. Horse is a ... and herbivorous mammal.

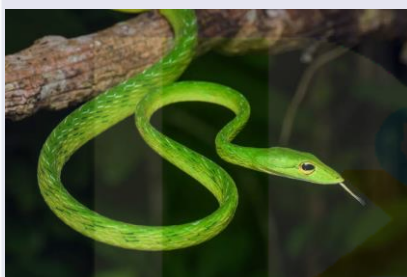
It ... in stable or barn and eats grass.

It has four legs and...

- a) Fast - Runs - Fur
- b) Slow - Walks - Spot
- c) Tall - Eats - Feather
- d) large- Lives - Fast



- 13.
- a) An adorable white Rabbit
 - b) A white adorable Rabbit
 - c) A white Rabbit adorable
 - d) An adorable Rabbit white



- 14.
- a) A green scorpions snake
 - b) A dangerous green snake
 - c) A dangerous snake green
 - d) A green of dangerous snake

15. When I visited the Jakarta zoo, I saw a spider. This spider is a fascinating and incredible creature. It is a small but skillful arachnid with a round body and long, slender legs. The spider has eight eyes, arranged in a special pattern to help it see its surroundings. Its eyes are tiny but very sharp, allowing it to detect even the slightest movement. The spider is usually solitary, weaving its delicate web alone. However, sometimes it gathers in groups to hunt or share a web. The spider hunts mostly insects, catching them in its web and patiently waiting for its prey to get trapped.

What is mostly spider hunt

- a) Flower
- b) Insects

- c) plant
- d) big mammals

16. What is the purpose of the text? It is to ...

- a) show how to catch spider
- b) describes specific animal namely an Spider in the zoo
- c) describe zoo in jakarta
- d) tell the story about an owl that spreading in the society

17. When I visited the large ocean aquarium, I saw a Great White Shark. This fish is known as the ocean's most powerful predator. It has a heavy, streamlined body that is grey on top and white underneath, and its mouth holds rows of razor-sharp teeth. A unique fact about this creature is that it must constantly swim forward to force water over its gills to breathe. Sharks are usually solitary animals and often travel alone for thousands of kilometers in the open ocean. The Great White Shark is a carnivore that primarily hunts seals, sea lions, and large fish.

The text says the Great White Shark 'is known as the ocean's most powerful predator.' What does the word 'predator' mean?

- a) An animal that only eats plants and seaweed.
- b) An animal that hunts and eats other animals.
- c) An animal that swims very fast.
- d) An animal that run very fast

18. What is the main purpose of the text you just read?

- a) To compare the Great White Shark with other ocean animals.
- b) To describe a specific animal, the Great White Shark.
- c) To persuade the reader to visit an ocean aquarium.
- d) To tell a story about a fisherman who caught a shar

19. Arrange the jumbled words to make good sentence.

likes-my-fish-cat-and-eats-it

- a) My cat likes and eats fish it.
- b) fish my cat likes and eats it.

- c) My cat likes fish and eats it.
- d) likes fish and eats it my cat.

20. Arrange the jumbled words to make good sentence.

Trees-monkey-from-fruit-eat-hanging

- a) Monkey eat fruit hanging from trees.
- b) Eat fruit monkey from trees hanging.
- c) hanging from trees eat monkeys fruit.
- d) monkeys hanging eat from trees fruits.

Parepare, 16 Mei 2026

Knowing:

Principal Supervisor

Dr.H. Ambo Dalle, S.Ag. M.Pd.
EIN.19691231 199903 1006

PAREPARE

Appendix 2 RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Sekolah : SMP Negeri 9 Parepare
 Mata pelajaran : Bahasa Inggris
 Kelas : VII
 Waktu : 60 Menit (pertemuan ke1)
 Tahun pelajaran : 2025/2026

A. Tujuan Pembelajaran

1. Siswa mampu saling memperkenalkan diri dalam konteks pembelajaran bahasa Inggris.
2. Siswa mampu mengerjakan soal *pre-test* kosakata dengan jujur untuk mengukur kemampuan awal (*baseline score*).
3. Siswa mampu memahami gambaran umum tentang penggunaan teknologi interaktif dalam pembelajaran kosakata bahasa Inggris.

B. Langkah Pembelajaran

Langkah Pembelajaran	Deskripsi	Alokasi
Kegiatan pendahuluan	• Guru mengucapkan salam, menyapa siswa, berdoa bersama, dan mengecek kehadiran. • Guru memberikan apersepsi dengan menanyakan pengalaman siswa dalam menguasai kosakata (<i>vocabulary</i>) bahasa Inggris dan kendala yang sering mereka hadapi (misalnya bosan atau sulit menghafal). • Guru menjelaskan tujuan pembelajaran hari ini dan menginformasikan bahwa mereka akan	10 menit

	belajar kosakata hewan (<i>animals</i>) menggunakan teknologi <i>Augmented Reality</i> (AR) yang menyenangkan pada pertemuan berikutnya.	
Kegiatan inti	• Guru memperkenalkan diri sebagai peneliti/guru model dan mengajak siswa melakukan sesi perkenalan singkat. • Guru membagikan lembar soal <i>pre-test</i> yang terdiri dari 20 nomor pilihan ganda mengenai kosakata hewan. • Guru menjelaskan petunjuk pengerjaan soal <i>pre-test</i> secara jelas. • Siswa menjawab soal <i>pre-test</i> secara mandiri untuk mengukur kemampuan awal mereka. • Guru mengumpulkan lembar jawaban <i>pre-test</i> setelah durasi pengerjaan selesai. • Guru memberikan orientasi singkat bahwa pada pertemuan kedua mereka akan menggunakan <i>Augmented Reality</i>	40 menit

	untuk melakukan aktivitas berburu kosakata (<i>Scavenger Hunt</i>).	
Kegiatan penutup	- Guru dan siswa melakukan refleksi singkat mengenai kegiatan hari ini. Guru memberikan motivasi agar siswa tetap bersemangat untuk memulai pembelajaran interaktif berbasis AR di pertemuan depan. - Guru menutup kelas dengan berdoa bersama, mengucapkan salam, dan berterima kasih kepada siswa.	10 menit

RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Sekolah : SMP Negeri 9 Parepare
Mata pelajaran : Bahasa Inggris
Kelas : VII
Waktu : 60 Menit (pertemuan ke2)

A. Tujuan Pembelajaran

1. Siswa mampu mengidentifikasi arti kata (meaning) dari kosakata hewan melalui visualisasi objek 3D pada aplikasi Augmented Reality (Assemblr Edu).
2. Peserta didik memahami cara pengoperasian dengan AR(memindai marker) Siswa memahami cara mengoperasikan fitur AR (memindai marker dan mengeksplorasi aset digital).
3. Siswa mampu bekerja sama dalam kelompok untuk menyelesaikan lembar kerja (worksheet) berbasis permainan AR Scavenger Hunt

Langkah pembelajaran	Deskripsi	Alokasi
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Kegiatan pendahuluan	• Guru mengucapkan salam, menyapa siswa, berdoa bersama, dan mengecek kehadiran. • Guru memberikan apersepsi dan motivasi terkait kelanjutan materi kosakata hewan menggunakan teknologi digital.	10 menit
Kegiatan inti	• Guru memperkenalkan aplikasi AR Assemblr Edu, serta menjelaskan manfaat dan kegunaannya dalam membantu memahami makna kata secara visual (Dual-Coding). • Guru mendemonstrasikan cara mengoperasikan aplikasi, memindai (scanning) marker kartu hewan, dan mengamati model 3D yang muncul pada layar smartphone.  • Siswa mencoba menggunakan aplikasi AR secara	40 menit

	langsung dengan bimbingan dan pengawasan intensif dari guru. Guru membagi siswa ke dalam 5 kelompok heterogen dan membagikan peta petunjuk/petunjuk arah permainan. • Siswa melakukan aktivitas AR Scavenger Hunt di sekitar area kelas/sekolah untuk mencari marker tersembunyi dan memindai model 3D hewan. • Selama perburuan berlangsung, setiap kelompok wajib mengisi lembar kerja (worksheet) yang diberikan guru untuk mencatat nama hewan dan ciri fisik yang mereka lihat pada objek 3D guna memaksimalkan interaksi belajar.	
Kegiatan penutup	• Guru melakukan refleksi singkat mengenai kendala teknis atau kesulitan yang dialami siswa saat mengoperasikan aplikasi AR. • Siswa diberikan kesempatan untuk menyampaikan kesan dan tantangan selama	10 menit

	proses pembelajaran. • Guru menginformasikan bahwa data hewan yang ditemukan hari ini akan digunakan untuk menyusun kalimat pada pertemuan berikutnya. • Kelas diakhiri dengan doa, salam penutup, dan ucapan terima kasih.	
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RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Sekolah : SMP Negeri 9 Parepare
 Mata pelajaran : Bahasa Inggris
 Kelas : VII
 Waktu : 60 Menit (pertemuan ke3)

A. Tujuan Pembelajaran

1. Siswa mampu menyelesaikan tugas lembar kerja kosakata dari sesi sebelumnya yang belum tuntas secara bertanggung jawab.
2. Siswa mampu mempresentasikan hasil temuan kosakata hewan dari aktivitas AR Scavenger Hunt di depan kelas secara berkelompok dengan percaya diri.
3. Siswa mampu melafalkan (pronunciation) kosakata baru yang mereka temukan secara bergantian dengan artikulasi yang jelas dan tepat.
4. Siswa bersama guru mampu menyimpulkan dan merefleksikan makna serta pembelajaran kosakata yang telah didapatkan.

Langkah Pembelajaran	Deskripsi	Alokasi
Kegiatan pendahuluan	• Guru mengucapkan salam, menyapa siswa, berdoa bersama, dan mengecek kehadiran. • Guru melakukan <i>review</i> singkat	10 menit

	mengenai kegiatan perburuan kosakata (<i>scavenger hunt</i>) berbasis AR pada pertemuan sebelumnya.	
Kegiatan inti	• Guru melanjutkan materi dari sesi sebelumnya jika masih ada bagian yang belum tuntas diselesaikan. • Guru mengumumkan bahwa setiap kelompok akan memberikan presentasi mengenai apa saja yang telah mereka temukan selama kegiatan <i>scavenger hunt</i> menggunakan aplikasi AR. • Masing-masing kelompok maju ke depan kelas untuk menjelaskan hasil temuan kosakata hewan mereka selama perburuan <i>scavenger hunt</i>. • Semua anggota kelompok mendapatkan giliran secara bergantian untuk menjelaskan kosakata yang mereka dapatkan dari kartu <i>scavenger hunt</i> tersebut untuk melatih pelafalan	50 menit

	(<i>pronunciation</i>) mereka.	
Kegiatan penutup	• Guru memberikan kesimpulan (<i>summarizes</i>) dan melakukan refleksi (<i>reflects</i>) terhadap seluruh proses pembelajaran dan presentasi yang telah dilakukan siswa hari ini. • Guru menyampaikan gambaran singkat tentang materi deskripsi hewan untuk pertemuan berikutnya. • Guru mengakhiri kelas dengan berdoa, mengucapkan salam, dan berterima kasih kepada siswa.	10 menit

RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Sekolah : SMP Negeri 9 Parepare
 Mata pelajaran : Bahasa Inggris
 Kelas : VII
 Waktu : 60 Menit (pertemuan ke4)

A. Tujuan Pembelajaran

1. Siswa mampu memahami struktur dan komponen teks paragraf deskriptif sederhana melalui contoh yang diberikan oleh guru
2. Siswa mampu mengekspresikan pemahaman kosakata mereka secara kreatif dengan menggambar seekor hewan pilihan mereka sendiri
3. Siswa mampu menyusun kalimat deskriptif sederhana di bawah gambar tersebut dengan memanfaatkan kosakata baru (new vocabulary) yang telah dipelajari selama kegiatan scavenger hunt dan tantangan kosakata sebelumnya

B. Langkah Pembelajaran

Langkah Pembelajaran	Deskripsi	Alokasi
Kegiatan pendahuluan	- Guru mengucapkan salam, menyapa siswa, berdoa bersama, dan mengecek kehadiran. - Guru memberikan apersepsi dan memotivasi siswa untuk bersiap melakukan aktivitas kreatif individu.	10 menit
Kegiatan inti	- Sebelum memulai latihan mandiri, guru memberikan contoh teks paragraf deskriptif sederhana tentang suatu hewan di papan tulis sebagai acuan. - Siswa diminta untuk menggambar seekor	40 menit

	hewan pilihan mereka pada lembar kertas, lalu menuliskan kalimat deskriptif sederhana di bawah gambar tersebut. • Dalam menulis kalimat deskriptif tersebut, siswa wajib menggunakan kosakata baru (<i>new vocabulary</i>) yang telah mereka pelajari selama kegiatan <i>scavenger hunt</i> dan tantangan kosakata pada pertemuan-pertemuan sebelumnya.	
Kegiatan penutup	• Guru dan siswa menyampaikan kesimpulan akhir dari seluruh rangkaian pembelajaran berbasis Augmented Reality. • Guru memberikan apresiasi kepada seluruh siswa atas partisipasi aktif mereka selama penelitian. • Guru mengakhiri kelas dengan berdoa, mengucapkan salam penutup, dan berterima kasih.	10 menit

Appendix 3. Students' Score Pre-Test and Post-Test

$S = \frac{12}{20} \times 100 = 60$

APPENDICES

Name: Fahyad farhan habib
Class: 7.2
Date: 12-4-2026
PRE-TEST - 20 QUESTIONS
Instruction: Choose the correct answer!

1. The feet of some animals are called ____.



☒ a) shall
☐ b) eyes
☐ c) paws
☐ d) feathers

2. Birds are covered in ____.



☐ a) tentacles
☐ b) claws
☒ c) tail
☐ d) feathers

3. Penguin is a ... bird.
It cannot fly, but it can ... and dive in water.
It usually eats ...

$S = \frac{16}{20} \times 100 = 80$

Name: Fahyad farhan habib
Class: 7.2
Date: 2026-4-24
POST-TEST-20 QUESTIONS
Instruction: Choose the correct answer! Write your answers clearly in the space provided

1. The feet of some animals are called ____.



☐ a) tail
☒ b) claws
☐ c) paws
☐ d) feathers

2. cat are covered in ____.



☒ a) scales
☐ b) shell
☐ c) hair
☐ d) feathers

3. cow is a ... mammals
It cannot climb, but it can ... and swim.
It usually eats ...

$S = \frac{6}{20} \times 100 = 30$

APPENDICES

Name: Ranaidi
Class: 7.2
Date: 12-4-2026
PRE-TEST - 20 QUESTIONS
Instruction: Choose the correct answer!

1. The feet of some animals are called ____.



☒ a) shall
☐ b) eyes
☐ c) paws
☐ d) feathers

2. Birds are covered in ____.



☐ a) tentacles
☒ b) claws
☐ c) tail
☐ d) feathers

3. Penguin is a ... bird.
It cannot fly, but it can ... and dive in water.
It usually eats ...

$S = \frac{15}{20} \times 100 = 75$

Name: Ranaidi
Class: 7.2
Date: 12-4-2026
POST-TEST-20 QUESTIONS
Instruction: Choose the correct answer! Write your answers clearly in the space provided

1. The feet of some animals are called ____.



☐ a) tail
☒ b) claws
☐ c) paws
☐ d) feathers

2. cat are covered in ____.



☒ a) scales
☐ b) shell
☐ c) hair
☐ d) feathers

3. cow is a ... mammals
It cannot climb, but it can ... and swim.
It usually eats ...

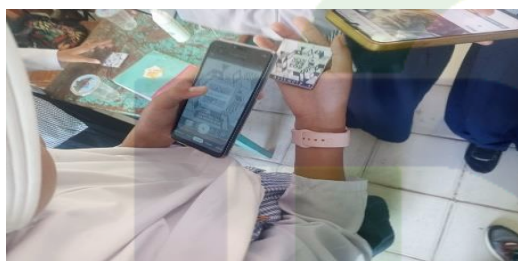
Appendix 4. Documentation



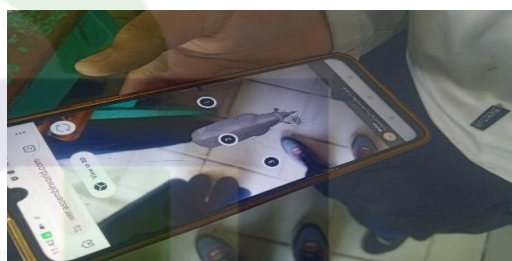
Picture 1. Students Worked on the Pre-Test



Picture 2. Students Worked on the Pre-Test



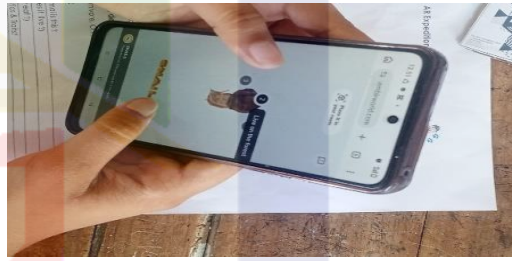
Picture 3. Students learned using Augmented Reality



Picture 4. Students learned using Augmented Reality



Picture 5 Students discuss the assignment given by the researcher



Picture 6 Students discuss the assignment given by the researcher



Picture 7. Students present the results of the discussion/describe in front of his friends



Picture 8. Last meeting after post-test

Appendix 5. Virtue of Consultant Degree



DEKAN FAKULTAS TARBIYAH
NOMOR : B-686/In.39/FTAR.01/PP.00.9/02/2025
TENTANG

**PENETAPAN PEMBIMBING SKRIPSI/TUGAS AKHIR MAHASISWA
DENGAN RAHMAT TUHAN YANG MAHA ESA
DEKAN FAKULTAS TARBIYAH INSTITUT AGAMA ISLAM NEGERI PAEREPARE**

Menimbang	a. Bahwa untuk menjamin kualitas skripsi/tugas akhir mahasiswa FAKULTAS TARBIYAH IAIN Parepare, maka dipandang perlu penetapan pembimbing skripsi/tugas akhir mahasiswa tahun 2025 b. Bahwa yang tersebut namanya dalam surat keputusan ini dipandang cakap dan mampu untuk disertai tugas sebagai pembimbing skripsi/tugas akhir mahasiswa.
Mengingat	1. Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional; 2. Undang-Undang Nomor 14 Tahun 2005 tentang Guru dan Dosen; 3. Undang-Undang Nomor 12 Tahun 2012 tentang Pendidikan Tinggi; 4. Peraturan Pemerintah RI Nomor 17 Tahun 2010 tentang Pengelolaan dan Penyelenggaraan Pendidikan 5. Peraturan Pemerintah RI Nomor 13 Tahun 2015 tentang Perubahan Kedua atas Peraturan Pemerintah RI Nomor: 19 Tahun 2005 tentang Standar Nasional Pendidikan; 6. Peraturan Presiden RI Nomor 29 Tahun 2018 tentang Institut Agama Islam Negeri Parepare; 7. Keputusan Menteri Agama Nomor: 394 Tahun 2003 tentang Pembukaan Program Studi; 8. Keputusan Menteri Agama Nomor 387 Tahun 2004 tentang Petunjuk Pelaksanaan Pembukaan Program Studi pada Perguruan Tinggi Agama Islam; 9. Peraturan Menteri Agama Nomor 35 Tahun 2018 tentang Organisasi dan Tata Kerja IAIN Parepare 10. Peraturan Menteri Agama Nomor 16 Tahun 2019 tentang Statuta Institut Agama Islam Negeri Parepare.
Memperhatikan :	a. Surat Pengesahan Daftar Isian Pelaksanaan Anggaran Nomor: SP DIPA-025.04.2.307381/2025, tanggal 28 November 2024 tentang DIPA IAIN Parepare Tahun Anggaran 2025 b. Surat Keputusan Rektor Institut Agama Islam Negeri Parepare Nomor: 74 TAHUN 2025 Tahun 2025, tanggal 20 Januari 2025 tentang pembimbing skripsi/tugas akhir mahasiswa Fakultas Tarbiyah;
Menetapkan	MEMUTUSKAN a. Keputusan Dekan Fakultas Tarbiyah tentang pembimbing skripsi/tugas akhir mahasiswa Fakultas Tarbiyah Institut Agama Islam Negeri Parepare Tahun 2025 b. Menunjuk saudara: Dr. H. AMBO DALLE, M.Pd., sebagai pembimbing skripsi/tugas akhir bagi mahasiswa : Nama Mahasiswa : MUHAMMAD NUH HAMSYAR NIM : 202020388203015 Program Studi : Pendidikan Bahasa Inggris Judul Penelitian : THE USE OF AUGMENTED REALITY AS AN INTERACTIVE LEARNING TOOL TO IMPROVE VOCABULARY AT SMPN 9 PAREPARE c. Tugas pembimbing adalah membimbing dan mengarahkan mahasiswa mulai pada penyusunan sinopsis sampai selesai sebuah karya ilmiah yang berkualitas dalam bentuk skripsi/tugas akhir; d. Segala biaya akibat diterbitkannya surat keputusan ini dibebankan kepada Anggaran belanja IAIN Parepare; e. Surat keputusan ini disampaikan kepada yang bersangkutan untuk dilaksanakan sebagaimana mestinya.

Ditetapkan Parepare
Pada tanggal 24 Pebruari 2025
Dekan,



Dr. Zulfah, S.Pd., M.Pd.
NIP 198304202008012010

Appendix 6. Research Permit Recommendation

 **KEMENTERIAN AGAMA REPUBLIK INDONESIA**
INSTITUT AGAMA ISLAM NEGERI PAREPARE
FAKULTAS TARBIYAH
Alamat : JL. Amal Bakti No. 8, Soreang, Kota Parepare 91132 ☎ (0421) 21307 📠 (0421) 24404
PO Box 909 Parepare 9110, website : www.iainpare.ac.id email: mail.iainpare.ac.id

Nomor : B-816/In.39/FTAR.01/PP.00.9/04/2026 07 April 2026
Sifat : Biasa
Lampiran : -
Hal : Permohonan Izin Pelaksanaan Penelitian

Yth. WALIKOTA PAREPARE
Cq. Kepala Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu
di
KOTA PAREPARE

Assalamu Alaikum Wr. Wb.

Dengan ini disampaikan bahwa mahasiswa Institut Agama Islam Negeri Parepare :

Nama	: MUHAMMAD NUH HAMSİYAR
Tempat/Tgl. Lahir	: PAREPARE, 07 November 2002
NIM	: 2020203888203015
Fakultas / Program Studi	: Tarbiyah / Pendidikan Bahasa Inggris
Semester	: XII (Dua Belas)
Alamat	: JL. SIRATAL MUSTAKIM NO 11A KEL. CAPPA GALUNG KEC. BACUKIKI BARAT

Bermaksud akan mengadakan penelitian di wilayah WALIKOTA PAREPARE dalam rangka penyusunan Skripsi yang berjudul :

USING AUGMENTED REALITY AS AN INTERACTIVE LEARNING TOOL TO IMPROVE STUDENTS' VOCABULARY AT SMPN 9 PAREPARE

Pelaksanaan penelitian ini direncanakan pada tanggal 07 April 2026 sampai dengan tanggal 07 Mei 2026.

Demikian permohonan ini disampaikan atas perkenaan dan kerjasamanya diucapkan terima kasih.

Wassalamu Alaikum Wr. Wb.

Dekan,

Dr. Zulfah, S.Pd., M.Pd.
NIP 198304202008012010

Tembusan :

1. Rektor IAIN Parepare

Page : 1 of 1, Copyright©af's 2015-2026 - (muhiis) Dicitak pada Tgl : 08 Apr 2026 Jam : 10:26:31

Appendix 7. Letter of Research Completion



PEMERINTAH KOTA PAREPARE
DINAS PENDIDIKAN DAN KEBUDAYAAN
UPTD SMP NEGERI 9
Alamat : Jln. Bau Massepe No. 94A ☎ 0421 – 21940
Website : www.smpn9parepare.sch.id email : smpn9parepare@gmail.com
P A R E P A R E

NPSN : 40307707 **NSS : 201196104009**

SURAT KETERANGAN
 Nomor : 422 / 072 / SMP.9

Yang bertanda tangan dibawah ini Kepala UPTD SMP Negeri 9 Parepare menerangkan bahwa :

N a m a	: MUHAMMAD NUH HAMSYPAR
N I M	: 2020203888203015
Pakultas	: Tarbiyah
Jurusan	: Pendidikan Bahasa Inggris
Alamat	: Jln. Siratal Mustakim No. 11 A Parepare

Benar telah melaksanakan penelitian untuk mengambil data pada UPTD SMP Negeri 9 Parepare dalam rangka penyelesaian penyusunan SKRIPSI , mulai tanggal 6 April 2026 s.d 24 April 2026 yang berjudul :

“USING AUGMENTED REALITY AS AN INTERACTIVE LEARNING TOOL TO IMPROVE STUDENTS’ VOCABULARY AT SMPN 9 PAREPARE”

Demikian Surat Keterangan ini dibuat dan diberikan kepada yang bersangkutan untu dipergunakan seperlunya.

Parepare, 24 April 2026
 Kepala Sekolah,

H.HASDIR SUBROTO, S.Pd, M.Pd
NIP. 19790912 200312 1 008

CURRICULUM VITAE



MUHAMMAD NUH HAMSYAR, The author was born on November 07, 2002 in Parepare. he is the last child of Hamsyar and Suriyanti. He started his education at Elementary School at SD 57 Parepare and graduated in 2014. In the same year, he continued his education at Junior High School at SMP Negeri 9 Parepare and completed his education there in 2017. After that, he continued his education at SMA Negeri 2 Parepare which he graduated in 2020. In 2020, he decided to continue his education at the State Islamic Institute (IAIN) Parepare, in the Faculty of Tarbiyah, majoring in English language education. In addition, the author also participated in the regular community Service Program (KKN) and was selected as the village coordinator in 2025 in Botto village, District Pitu Riase, Regency Sidrap, South

Sulawesi. As part of requirements for completing their studies, the author has written a thesis entitled "Using Augmented Reality as an Interactive Learning Tool to Improve Students' Vocabulary at SMPN 9 Parepare" to obtain the degree of Bachelor of Education (S.Pd).