

**THE EFFECTIVENESS OF USING DUOLINGO FOR TEENAGER
STUDENTS TO ENHANCE VOCABULARY AND GRAMMAR
RETENTION**

THESIS



By :

Lina Mar'atus Sholikhah

NIM: 19180024

**ENGLISH EDUCATION DEPARTMENT
FACULTY OF TARBIYAH AND TEACHER TRAINING
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM
MALANG
2025**

**THE EFFECTIVENESS OF USING DUOLINGO FOR TEENAGER
STUDENTS TO ENHANCE VOCABULARY AND GRAMMAR
RETENTION**

THESIS

*Submitted to the Faculty of Education and Teacher Training in Partial
Fulfillment of the Requirement of the Degree of English Language Teaching
(S.Pd) in English Education Department*

By

Lina Mar'atus Sholikhah

NIM. 19180024

Advisor

Harir Mubarak, M.Pd

NIP. 198707082023211024



**ENGLISH EDUCATION DEPARTMENT
FACULTY OF TARBIYAH AND TEACHER TRAINING
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM
MALANG**

2025

APPROVAL SHEET

**THE EFFECTIVENESS OF USING DUOLINGO FOR TEENAGER STUDENTS TO
ENHANCE VOCABULARY AND GRAMMAR RETENTION**

THESIS

By:

Lina Mar'atus Sholikhah

NIM. 19180024

Has been approved by the advisor for the further approval by the Board of Examiners

Advisor



Harir Mubarak, M.Pd
NIP. 198707082023211024

Acknowledged by

Head of English Education Department



Prof. Dr. H. Langgeng Budianto, M.Pd
NIP. 197110142003121001

LEGITIMATION SHEET
THE EFFECTIVENESS OF USING DUOLINGO FOR TEENAGER
STUDENTS TO ENHANCE VOCABULARY AND GRAMMAR
RETENTION
THESIS

By:



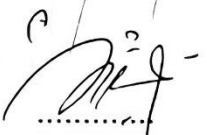
Lina Mar'atus Sholikhah (19180024)

Has been defended in front of the board of examiners at the date of
(March 18th 2025) and declared PASS

Accepted as the requirement of the Degree of English Language Teaching (S.Pd)
in the English Education Department, Faculty of Education and Teacher Training.

The Board of Examiners,

Signatures

- | | | |
|----------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|
| 1. Prof. Dr. Hj. Like Raskova Oktaberlina, M.Ed
NIP. 197410252008012015 | Chairman |  |
| 2. Harir Mubarak, M.Pd
NIP. 198707082023211024 | Secretary/Advisor |  |
| 3. Ima Mutholliatil Badriyah, M.Pd
NIP. 198312172023212017 | Main Examiner |  |

Approved by

Dean of Education and Teacher Training
Maulana Ma'rufin Maulana State Islamic University



THE OFFICIAL ADVISOR'S NOTE

The Honorable,

Dean of Educational and Teacher Training Faculty

Maulana Malik Ibrahim Malang Islamic State University of Malang

In

Malang

Assalamu'alaikum Wr.Wb.

After conducting several times of guidance in term of content, language, writing technique, and after reading student's thesis as follow:

Name	: Lina Mar'atus Sholikhah
Student ID Number	: 19180024
Department	: English Education
Thesis	: The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary and Grammar Retention

Therefore, we believed that the thesis of Lina Mar'atus Sholikhah has been approved for further approval by the board of examiners.

Wasslamualaikum Wr. Wb.

Advisor,



Harir Mubarak, M.Pd

198707082023211024

APPROVAL

This is to certify that the thesis of Lina Mar'atus Sholikhah has been approved by the advisor for further approval by the board of examiners.

Malang, February 06th, 2025

Advisor,

A handwritten signature in black ink, appearing to be 'Harir Mubarak', written in a cursive style.

Harir Mubarak, M.Pd
198707082023211024

DECLARATION OF AUTHORSHIP

Bismillahirrahmanirrahim,

Herewith, I:

Name : Lina Mar'atus Sholikhah
Student ID Number : 19180024
Department : English Education
Address : Jl. S. Parman 55 Desa Pulo, Kecamatan Tempeh,
Kabupaten Lumajang, Provinsi Jawa Timur

Declare that:

1. This thesis has never submitted to any other tertiary education institution for any other academic degree.
2. This thesis is the sole work of the author and has not been written in collaboration with any other person, not does it include, without due acknowledgement, the result of any person.
3. Should it later be found that this thesis is product of plagiarism, I am willing to accept any legal consequences that may be imposed on me.

Malang, February 06th, 2025

The Researcher,



Lina Mar'atus Sholikhah
NIM. 19180024

MOTTO

“Instead of being a flower, be the soil that makes flowers bloom”

~Ryoma Otsuka~

THESIS DEDICATION

I dedicate this thesis to my beloved family, specially my father, Ahmadi A., S.Ag, my mother, Ruqoiyah, S.Ag, and all family members who have provided support, encouragement, motivation, and never-ending prayers. I also dedicate this thesis to Harir Mubarak, M.Pd, my thesis supervisor, for his guidance, help, and valuable suggestions so that I can complete this thesis. Finally, I dedicate this thesis to my friends who I cannot mention one by one, who have provided support, motivation, prayers, and assistance during the process of writing this thesis.

ACKNOWLEDGEMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allah SWT, The Beneficent, The Merciful

All praises are to Allah for all blesses to the author, so the thesis entitled “*The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary and Grammar Retention*” can be completed well.

Peace and blessings be upon the Prophet Muhammad SAW, the Prophet who has brought Muslims from darkness to light. This thesis is one of the requirements that must be completed by students as part of the final study at Maulana Malik Ibrahim State Islamic University Malang, Faculty of Tarbiyah and Keguruan Sciences, Department of English Education. The author hopes that this thesis can be useful for all parties, especially in the field of English education.

The author would like to express his deepest gratitude to all those who have provided endless motivation and support in the process of writing this thesis. To the honorable:

1. To my beloved parents, my father, Ahmadi A., S.Ag and my mother, Ruqoiyah, S.Ag who always motivating, supporting, and praying for me.
2. Prof. Dr. H. M. Zainuddin, MA, as Rector of Maulana Malik Ibrahim State Islamic University of Malang.
3. Prof.Dr. H. Nur. Ali, M.Pd, as a Dean of Tarbiyah and Teaching Training Faculty.
4. Prof.Dr. H. Langgeng Budianto, M.Pd as Head of English Education Department, enthuses all English students and imparts their knowledge.

5. Harir Mubarak, M.Pd as my advisor, who sincerely took the time to guide me patiently and contribute constructive ideas so that this thesis was completed well.
6. Basori, M.S.ED as my advisor when developing and construct my thesis proposal and providing directions and suggestions for research idea.
7. All lecturers majoring in English Education who have helped in the learning process for these four years, thank you for the knowledge that researcher have never learned before. All the hard work and everything given will be a blessing.
8. Drs. Taufik Hidayat as Head of MTs. Islamiyah Sukopuro who has given permission to conduct research at MTs. Islamiyah Sukopuro, which has provided the location and time needed to complete this research.
9. Siti Rohmah, S.Pd as the English teacher at MTs. Islamiyah Sukopuro, who provided significant help to the researcher by giving permission to conduct research and supporting during the research process, including the pre-test, treatment, and post-test stages.
10. A big thank you to all students of grades 7A and 7B for dedicating their time to assist the researcher in conducting the study and collecting the data. I appreciate your cooperation and it was a pleasure meeting you.
11. My best friend, Faradila Kholishatuzzahra. Thank you for always giving your all time to support, motivate, help, and also cheer me up when I will give up with this thesis.
12. Faradila's Parents, Mohtar, S.Pd.I and Suratmi S.Pd.I. Thank you for supporting me to finish the thesis.

13. ‘The villagers in Ngalam’ gang (Hafidatus Sa’diyah and Farhan Zaky Audani) who always giving support and help me when I have difficulties during compiling the thesis.

14. All friends, Class of English Education 2019 (FASTCO 2019), thank you for the time spent together, the information provided, and the support given. I wish you all the best.

15. Last but not least, I want to thank myself for sticking around this far, for believing that can get through it to the end. And thank you for completing this thesis even though had to overcome various obstacles and challenges and finally this thesis is finished.

Finally, the author realizes that there may be faults in this thesis. Therefore, the author is happy to receive constructive feedback from readers for future improvement. May Allah give mercy and blessings to us all.

Malang, February 06, 2025

Lina Mar’atus Sholikhah

LATIN ARABIC TRANSLITERATION GUIDE

The writing of Arabic-Latin transliteration in this thesis uses transliteration guidelines based on a joint decision of the Minister of Religion of the Republic of Indonesia and the Minister of Education and Culture of the Republic of Indonesia Number 158 of 1987 and Number 0543b/U/1987 which can be described as follows:

A. Words

ا	=	a	ز	=	z	ق	=	Q
ب	=	b	س	=	s	ك	=	K
ت	=	t	ش	=	sy	ل	=	L
ث	=	ts	ص	=	sh	م	=	M
ج	=	j	ض	=	dl	ن	=	N
ح	=	<u>h</u>	ط	=	th	و	=	W
خ	=	Kh	ظ	=	zh	ه	=	H
د	=	d	ع	=	‘	ء	=	’
ذ	=	dz	غ	=	gh	ي	=	Y
ر	=	r	ف	=	f			

B. Long Vocal

Long Vocal (a)	=	â
Long Vocal (i)	=	î
Long Vocal (u)	=	û

C. Dipthong Vocal

أَوْ	=	aw
أَيَّ	=	ay
أُو	=	ũ
إَيَّ	=	î

TABLE OF CONTENT

SUBMISSION SHEET	i
APPROVAL SHEET	ii
LEGITIMATION SHEET	iii
THE OFFICIAL ADVISOR'S NOTE	iv
APPROVAL.....	v
DECLARATION OF AUTHORSHIP	vi
MOTTO	vii
THESIS DEDICATION	viii
ACKNOWLEDGEMENT	ix
LATIN ARABIC TRANSLITERATION GUIDE	xii
TABLE OF CONTENT	xiii
LIST OF TABLE	xvi
LIST OF HISTOGRAM GRAPH	xvii
LIST OF APPENDICES	xviii
ABSTRACT	xix
ABSTRAK	xx
مستخلص البحث	xxi
CHAPTER I INTRODUCTION	1
1.1. Background of the Study	1
1.2. Research Question	8
1.3. Research Objective	8
1.4. Significance of the Study	8
1.5. Scope of Study	9
1.6. Hypothesis	9
1.7. Definition of Key Term	10
CHAPTER II THEORITICAL FRAMEWORK	11
2.1. Definition of Vocabulary	11
2.2. Teaching Vocabulary	12
2.3. Definition of Grammar	14
2.4. Teaching Grammar	15
2.5. Drill Technique as Vocabulary and Grammar Mastery Technique.....	17
2.6. Extramural English	18
2.7. Memory Retention	18
2.8. Types of Memory Retention.....	19

2.9. Definition of Learning Media.....	23
2.10. Types of Learning Media	23
2.11. Benefits Using Learning Media.....	24
2.12. ICT (Information and Communications Technology) as Learning Media	26
2.13. MALL (Mobile Assisted Language Learning).....	28
2.14. Definition of Duolingo	29
2.15. Steps How to Use Duolingo Application	31
2.16. Advantages and Disadvantages Using Duolingo	38
2.17. Previous Study.....	40
CHAPTER III RESEARCH METHODOLOGY	46
3.1. Research Design	46
3.2. Research Population	47
3.3. Time and Setting of The Research	48
3.4. Research Variable.....	49
3.4.1. Independent Variable.....	50
3.4.2. Dependent Variable	50
3.5. Data Sources	50
3.5.1. Primary Data.....	50
3.5.2. Secondary Data.....	51
3.6. Research Instruments.....	51
3.7. Validity and Reliability Testing	52
3.7.1. Validity	52
3.7.2. Reliability	54
3.8. Data Collection.....	56
3.8.1. Pre-Test.....	56
3.8.2. Treatment.....	56
3.8.3. Post-Test	57
3.9. Data Analysis	57
3.9.1 The Mann Whitney Test.....	58
CHAPTER IV FINDING AND DISCUSSION.....	59
4.1. Finding.....	59
4.1.1. Data Analysis of Pre-Test.....	59
4.1.2. Data Analysis of Post-Test Immediate Measurement	65
4.1.3. Data Analysis of Post-Test Longer Measurement	71
4.1.4. Students' Achievement in Vocabulary and Grammar Retention	76

4.1.5. Result of Validity Testing	81
4.1.6. Result of Reliability Testing	86
4.1.7. Result of Mann Whitney Test	86
4.2. Discussion.....	88
CHAPTER V CONCLUSION	94
5.1. Conclusion.....	94
5.2. Suggestion	95
5.2.1. English teacher.....	95
5.2.2. Further researcher	96
REFERENCES.....	97
APPENDICES	102

LIST OF TABLE

Table 3.1 Description of quasi-experimental pre-test and post-test design	47
Table 3.2 Schedule of the Research	48
Table 3.3 Category of Students' Score	51
Table 3.4 Intervention of Data Collection	57
Table 4.1 Students' Score Pre-Test Experimental group	60
Table 4.2 Descriptive statistic of Pre-test Experimental Group	61
Table 4.3 Students' Score Pre-Test Control Group	62
Table 4.4 Descriptive Statistic of Pre-Test Control Group	64
Table 4.5 Students' Score Post-Test IM Experimental Group	65
Table 4.6 Descriptive Statistic of Post-Test IM Experimental Group	67
Table 4.7 Students' Score Post-Test IM Control Group	68
Table 4.8 Descriptive Statistic of Post-Test IM Control Group	70
Table 4.9 Students' Score Post-Test LM Experimental Group	71
Table 4.10 Descriptive Statistic of Post-Test LM Experimental Group	73
Table 4.11 Students' Score Post-Test LM Control Group	74
Table 4.12 Descriptive Statistic of Post-Test LM Control Group	75
Table 4.13 Result of Pre-Test and Post-Test IM Experimental Group	76
Table 4.14 Result of Pre-Test and Post-Test LM Experimental Group	78
Table 4.15 Result of Pre-Test and Post-Test IM Control Group	79
Table 4.16 Result of Pre-Test and Post-Test LM Control Group	80
Table 4.17 Result of Validity Test	81
Table 4.18 Reliability Statistic	86
Table 4.19 Mann Whitney Testing for Immediate Measurement	87
Table 4.20 Mann Whitney Testing for Longer Measurement	87

LIST OF HISTOGRAM GRAPH

Diagram 4.1 Pre-Test Experimental Group	61
Diagram 4.2 Pre-Test Control Group	63
Diagram 4.3 Post-Test Immediate Measurement Experimental Group	67
Diagram 4.4 Post-Test Immediate Measurement Control Group	69
Diagram 4.5 Post –Test Longer Measurement Experimental Group	72
Diagram 4.6 Post-Test Longer Measurement Control Group	75

LIST OF APPENDICES

Appendix I Rencana Pelaksanaan Pembelajaran	103
Appendix II Soal Pre-Test.....	106
Kunci Jawaban Pre-Test.....	115
Appendix III Soal Post-Test Immediate Measurement.....	116
Kunci Jawaban Post-Test Immediate Measurement	125
Appendix IV Soal Post-Test Longer Measurement	126
Kunci Jawaban Post-Test Longer Measurement	135
Appendix V Instrument Validation Letter	136
Appendix VI Validation Sheet	137
Appendix VII Evidence of Consultation.....	140
Appendix VIII Survey Permit Petition.....	141
Appendix IX Survey Permit	142
Appendix X Research Permit Letter	143
Appendix XI Students' Answer Sheet	144
Appendix XII Documentation.....	156
Appendix XIII Curriculum Vitae	157

ABSTRACT

Sholikhah, Lina Mar'atus. 2025. The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary and Grammar Retention. Thesis, English Education Department. Faculty of Tarbiyah and Teacher Training. Maulana Malik Ibrahim Malang Islamic State University of Malang
Advisor: Harir Mubarak, M.Pd.

Key Words: Vocabulary Retention, Grammar Retention, Duolingo Application, Short-Term Memory, Long-Term Memory

Vocabulary and grammar are the basic building component of a language that is needed to learn a language. Because of basic building, it requires a lot of words in order to communicate well and also need to know the system and structure of a language. The common difficulties of students in vocabulary and grammar are they get difficult to remember vocabulary because they are required to remember a lot of vocabulary and also students get bored with grammar lesson. Therefore, there is one game-based media, namely the Duolingo application. Duolingo is one of the applications that can be utilized for enhancing vocabulary and grammar retention. This study aims to determine how suitable the Duolingo Application is for teenager students in vocabulary and grammar retention both short-term memory and long-term memory. This study used Quasi-Experimental quantitative research with 21 students in 7A class as the experimental group and 21 students in 7B class as the control group subjects. The researcher used Quasi-Experimental because she wants to know the difference before and after treatment. Students were given treatment three times using Duolingo Application and provided a pre-test before treatment and post-test after treatment. The results showed significant differences between pre-test and post-test. The test results were tested by non-parametric test namely Mann Whitney test using SPSS 21 version. The result of Mann Whitney test for immediate measurement showed that Asymp. Sig (2-tailed) value was 0.385, and Mann Whitney test for longer measurement showed that Asymp. Sig (2-tailed) value was 0.002. The Asymp. Sig (2-tailed) value had to less than probability value which was 0.005. These results were stated that Duolingo is ineffective in enhancing students vocabulary and grammar retention short-term memory, and Duolingo is effective in enhancing students vocabulary and grammar retention long-term memory.

ABSTRAK

Sholikhah, Lina Mar'atus. 2025. Efektivitas Penggunaan Duolingo Bagi Siswa Remaja untuk Meningkatkan Retensi Kosakata dan Tata Bahasa. Skripsi, Jurusan Pendidikan Bahasa Inggris, Fakultas Tarbiyah dan Keguruan, Universitas Islam Negeri Maulana Malik Ibrahim Malang
Pembimbing: Harir Mubarak, M.Pd.

Kata Kunci: Retensi Kosakata, Retensi Tata Bahasa, Aplikasi Duolingo, Memori Jangka Pendek, Memori Jangka Panjang

Kosakata dan tata bahasa merupakan komponen dasar pembangun suatu bahasa yang dibutuhkan untuk mempelajari suatu bahasa. Karena bersifat dasar, maka diperlukan banyak kata agar dapat berkomunikasi dengan baik dan juga perlu untuk mengetahui system dan struktur pada suatu bahasa. Salah satu kesulitan siswa dalam penguasaan kosakata adalah sulitnya mengingat kosakata karena dituntut untuk mengingat banyak kosakata dan juga siswa merasa bosan pada pelajaran tata bahasa. Terdapat salah satu media berbasis permainan yaitu Aplikasi Duolingo. Duolingo merupakan salah satu aplikasi yang dapat dimanfaatkan untuk meningkatkan retensi kosakata dan tata bahasa. Penelitian ini bertujuan untuk mengetahui seberapa cocok Aplikasi Duolingo bagi siswa remaja dalam retensi kosakata dan tata bahasa baik memori jangka pendek maupun memori jangka panjang. Penelitian ini menggunakan jenis penelitian kuantitatif Quasi-Experimental dengan subjek kelompok eksperimen sebanyak 21 siswa kelas 7A dan kelompok kontrol sebanyak 21 siswa kelas 7B. Peneliti menggunakan Quasi-Experimental karena ingin mengetahui perbedaan sebelum dan sesudah perlakuan. Siswa diberikan perlakuan sebanyak tiga kali dengan menggunakan Aplikasi Duolingo dan diberikan pre-test sebelum perlakuan dan post-test setelah perlakuan. Hasil penelitian menunjukkan adanya perbedaan yang signifikan antara pre-test dan post-test. Hasil pengujian diuji dengan uji non-parametrik yaitu uji Mann Whitney dengan menggunakan SPSS versi 21. Hasil uji Mann Whitney untuk pengukuran langsung menunjukkan nilai Asymp. Sig (2-tailed) sebesar 0,385, dan uji Mann Whitney untuk pengukuran lebih lama menunjukkan nilai Asymp. Sig (2-tailed) sebesar 0,002. Nilai Asymp. Sig (2-tailed) tersebut harus lebih kecil dari nilai probabilitas yaitu 0,005. Hasil ini menyatakan bahwa Duolingo tidak efektif dalam meningkatkan retensi kosakata dan tata bahasa memori jangka pendek siswa, dan Duolingo efektif dalam meningkatkan retensi kosakata dan tata bahasa memori jangka panjang siswa.

مستخلص البحث

الصالحة، لينا المرثة.2025. فعالية إستخدام Duolingo للطلاب المراهقين لزيادة الاحتفاظ بالمفردات. البحث العلمي. قسم التعليم اللغة الإنجليزية. كلية علوم التربية و التعليم، جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالانج.

المشرف: حرير مبارك الماجستير.

الكلمة الإشارة: حفظ المفردات، الاحتفاظ بالقواعد، تطبيق Duolingo، الذاكرة قصيرة المدى، الذاكرة طويلة المدى.

المفردات والقواعد هي عنصر البناء الأساسي للغة اللازمة لتعلم اللغة. بسبب البناء الأساسي، فإنه يتطلب الكثير من الكلمات للتواصل بشكل جيد ويحتاج أيضاً إلى معرفة نظام اللغة وبنيتها. تتمثل الصعوبات الشائعة التي يواجهها الطلاب في المفردات والقواعد في صعوبة تذكر المفردات لأنه يتعين عليهم تذكر الكثير من المفردات وأيضاً يشعر الطلاب بالملل من دروس القواعد. لذلك، هناك وسائل واحدة تعتمد على الألعاب، وهي تطبيق Duolingo. يعد Duolingo أحد التطبيقات التي يمكن استخدامها لتحسين الاحتفاظ بالمفردات والقواعد. تهدف هذه الدراسة إلى تحديد مدى ملاءمة تطبيق Duolingo للطلاب المراهقين في الاحتفاظ بالمفردات والقواعد في الذاكرة قصيرة المدى والذاكرة طويلة المدى. استخدمت هذه الدراسة البحث الكمي شبه التجريبي مع 21 طالباً في الفصل 7. كمجموعة تجريبية و 21 طالباً في الفصل 7. كمواضيع مجموعة ضابطة. استخدمت الباحثة شبه التجريبية لأنها أرادت معرفة الفرق قبل العلاج وبعده. تم إعطاء الطلاب العلاج ثلاث مرات باستخدام تطبيق Duolingo وتم إجراء اختبار قبلي قبل العلاج واختبار بعدي بعد العلاج. وأظهرت النتائج وجود فروق ذات دلالة إحصائية بين الاختبار القبلي والاختبار البعدي. تم اختبار نتائج الاختبار عن طريق اختبار غير حدودي وهو اختبار مان ويتني باستخدام الإصدار SPSS 21 وأظهرت نتيجة اختبار مان ويتني للقياس الفوري أن Asymp. تظهر نتائج اختبار مان ويتني للقياسات المباشرة قيمة Asymp. Sig (2-tailed) هو 0.385، ويظهر اختبار مان ويتني للقياسات الأطول قيمة Asymp. Sig (2-tailed) هو 0.002. يجب أن تكون قيمة (Sig 2-tailed) أصغر من قيمة الاحتمال، وهي 0.005. وقد أشارت هذه النتائج إلى أن برنامج Duolingo غير فعال في تعزيز الذاكرة قصيرة المدى للمفردات والقواعد لدى الطلاب، كما أن Duolingo فعال في تعزيز الذاكرة طويلة المدى المفردات والقواعد لدى الطلاب.

CHAPTER I

INTRODUCTION

In this chapter, the researcher will discuss the background of the study, identification of the problem, objective of the study, significance of the study, scope of the study, hypothesis and definition of key terms.

1.1. Background of the Study

English is a worldwide language that has been recognized by countries around the world. Its function satisfies trades or other exercises between governments around the world as well as an presentation to communication between countries (Dalimunthe & Haryadi, 2022). The important thing before starting to learn a language is known at least the vocabulary of that language. Vocabulary is the basic structural component of a language that is necessary to learn a language. People need to have various vocabularies to help them in all language skills, among them are reading, speaking, listening, and writing (Nurchurifiani et al., 2021). In reality, survival level communications can be very excited when people essentially put together words without applying syntactic rules. In this sense, vocabulary is considered as one of the fundamental factors that have a major impact on people's communication. In this way, vocabulary ought to be ideally placed as critical angel of language learning that ought to be given much consideration within practice of Teaching English for Foreign language (TEFL) to move forward students' vocabulary (Asyiah, 2017).

Beside of vocabulary, grammar is one of the most important as rules that help organize words and sentences in a particular language. It has been widely agreed that each language has its own grammar and possessing good grammar knowledge

is an important step for learners to a good language user (Phuong et al., 2017). Grammar is known as a set of rule that describe how words and group of word can be arranged to form sentence in a particular language. The grammar of English involves all the rules that govern the formation of English sentences, and that is exactly what learners of English want to know. Canale and Swain (1980) defined grammatical competence as a fundamental component of overall language proficiency, emphasizing the importance of students' ability to use grammatical structures correctly in communication.

Language is everyone's communication media to express their aims and objectives. Every nation has its own language. Therefore, it is impossible for person to communicate with partners that have different language. These languages diversity is part of the signs of Allah's power. That is explained in the Quran surah Ar-Rum verse 22.

وَمِنْ آيَاتِهِ خَلْقُ السَّمَوَاتِ وَالْأَرْضِ وَالاخْتِلَافُ اَلْسِنَتِكُمْ وَالْوَانِكُمْ اِنَّ فِيْ ذٰلِكَ لَاٰيٰتٍ لِّلْعٰلَمِيْنَ

Meaning: *"Among His signs (greatness) are the creation of the heavens and the earth, differences in language and the color of your skin. Indeed, in that there are indeed signs (of Allah's greatness) for those who have knowledge."*

In this verse, it is explained that understanding a foreign language is the initial capital for getting to know each other and communicating between fellow humans, even those with different languages.

In order to effectively acquire and communicate in a foreign language, it is essential to develop an adequate vocabulary and understand its appropriate application in various contexts. For a long time in a second or foreign language classes, as many teachers believed that understanding the structure of sentences was

fundamental to language acquisition. Consequently, the teaching of vocabulary often received limited attention. However, numerous studies have emphasized the critical role of vocabulary in language learning, recognizing it as a key element for students' success. As a result, many teachers now devote significant time to vocabulary instruction in an effort to enhance students' vocabulary knowledge (Abbasi & Poor, 2021). However, there are students' obstacles in learning vocabulary. What is generally experienced by students who are not native speakers is that they do not have motivation to learn because they think this language is not their main language. Due to this lack of motivation, teachers have difficulties in teaching vocabulary.

Vocabulary methods, difficult or insufficient vocabulary knowledge to preserve can negatively affect student's self-efficacy in second language learning or foreign language learning. There are numerous approaches and resources available to teach vocabulary. Clearly, simply incorporating additional books and materials into the classroom does not necessarily lead to improved language proficiency. Traditionally, many teachers focus on teaching a limited set of words and the definitions, without showing any specific strategies or techniques. As a result, students are often required to memorize extensive vocabulary lists, which may be forgotten over time. Although various strategies, methods, and techniques for vocabulary learning such as translation, semantic mapping, making visual pictures, guessing meaning from the context, keyword method, mnemonic devices; there remains significant debate regarding the relative effectiveness of these different approaches for teaching and presenting vocabulary items (Abbasi & Poor, 2021).

Furthermore, despite the importance of grammar, many teachers still face various problems such as the improper use of traditional teaching methods and the lack of modern teaching aids. Regarding the significance of grammar in language learning, learner need to use effective and attractive ways rather than boring way to learn grammar (Nhan & Yen, 2021). Many students claim that they feel bored with grammar lessons and do not want to spend time on learning them. They just want to improve their communication as fast as possible. Moreover, English learning program and testing format are changing toward integrating grammar into reading or writing skills in the tests. In addition, teaching grammar in traditional ways cannot motivate students to learn. In such teaching and learning contexts, grammar classes become too heavy for students. Therefore, there needs to be a strategy or method that is appropriate to today's era by using technology that help teachers in teaching vocabulary.

Technology is urgently necessary in the current 4.0 eras, especially in education. Technology is presently being utilized to enhance the teaching and learning process. Many complex devices in education have given rise to multitude of technology-based approaches and methods that contribute significantly to freeing learning from time and place constraints, thereby allowing students to learn whenever possible. These trends have also introduced a new method of learning and teaching, moving from the old-fashioned classroom learning method to e-learning (Islam & Hasan, 2020). Mobile devices are one of the standard devices that play an fundamental part in daily life.

Mobile Assisted Language Learning (MALL) is a strategy that uses mobile devices to support and improve language learning. MALL is now presently

accessible via various devices, including smartphones, mobile phones, tablets, and computers. Smartphones are widely used by children and young people and affect their daily lives. Educational games that incorporate technology offer a range of applications that can enhance English language teaching and learning. In recent years, the role of educational games in supporting learning has grown significantly. According to Ewa (2016), these games provide advantages, including the enhancement of communication skills and the promotion of creative and spontaneous language use. Furthermore, when implemented in a student-centered approach, they effectively motivate and encourage students, allowing them to improve their English skills both inside and outside the classroom (Tiara et al., 2021).

Duolingo is a widely accessible application that can be effectively used to enhance vocabulary and grammar retention. Available for free via a website, a laptop, or a smartphone. Duolingo aids students in improving their language skills, with a particular emphasis on vocabulary development and also grammar. By incorporating Duolingo into their teaching practices, teachers can easily facilitate the enhancement of students' English proficiency, fostering better comprehension both during the learning process and through its flexible use outside the classroom (Niah, 2019). It can also attract and involve students actively inside the learning activity. Duolingo has a great learning strategy. This application is like a game and rewards students for completing levels. Besides playing, students can also discuss in the forums/groups present in this application. This application also has a final test if students can complete the level. This way, students will know if their skills are improving or not. It can push students' abilities because students will have the

ambition to finish the game (Putri, Safitri, Khoirunnisa, Fianna, 2021). The structure is very similar to a computer game in which participants must pass a certain level. Duolingo has many features that make students easy to use and know their progress. Students progress through the language tree levels. They can open lesson after lesson that mastered. Students can engage in a variety of exercise on Duoingo, utilizing options such as writing, listening, and speaking with a microphone. Duolingo uses exercises and repetitions within the application as key components of its structure. Additionally, Duolingo deliberately implemets the concept of "learning by playing" through games to create a comfortable and welcoming learning environment. Games help and encourage many students to become more comfortable learning the target language. They also help teachers to create meaningful and valuable forms for the target words. In other words, game-based learning can make a significant setting for language context in the language learning process. After students learn and practice new vocabulary through games, they have the opportunity to use language without stress (Ruzmetova & Kayumova, 2020).

The previous studies have focused on studying about vocabulary and grammar retention with various media. Based on previous research in vocabulary retention, Güven and Bekdaş (2018) showed that using cartoons increase students' learning performance and vocabulary retention more than traditional vocabulary teaching methods. Cartoons can help students express their ideas more easily in the classroom, stimulate their thinking, and foster creativity. However, Anh et. al (2021) said that students' vocabulary retention is enhanced with or without the intervention of using stories in vocabulary teaching. Ta Na and Trang (2022) said

that using pictures to teach vocabulary does not only help improving the students' ability to memorize the vocabulary learning process, but also bring the students' motivation to learn language. Mansoor et. al (2022) showed that teaching Using short stories to teach English helps improve students' grades and their ability to retain new vocabulary. Students also enjoy learning through short stories. Khoshsima and Khosravi (2022) suggested that mobile and internet-based applications, such as WhatsApp and Anki, provide students with enhanced opportunities to learn vocabulary. Additionally, Le and Loung (2023) highlighted that flashcard-based techniques boost motivation, satisfaction, personal development, and interaction skills. They also emphasized that the effectiveness of flashcard-based strategies in vocabulary retention is highly significant. Based on previous study about grammar retention, Phoung and Nguyen (2017) said that the use of board games is beneficial to adult learners' grammar retention. Further, Nhan and Yen (2021) highlighted that students were able to learn more easily by using infographics, also it could motivate students to practice grammar and improve their grammar level. F.S. Wazeer (2023) said that language games were more effective in retaining grammar in the long-term while the traditional teaching method provides less effective in achieving the same result. Sang and Dan (2025) revealed a significant improvement in grammar retention as well as a positive shift in their attitudes toward grammar instruction.

Based on the previous research above, the researcher found that there is gap between research above and this research. The researcher takes Duolingo application as media to enhance students' vocabulary and grammar retention. The researcher wants to prove that Duolingo, a technology-based media can enhance

students' vocabulary especially in vocabulary retention also students' grammar retention for seventh grade students in Junior High School.

1.2. Research Question

Considering on the background above, the research question is:

“Is Duolingo effective for vocabulary and grammar retention of teenager students' short-term memory and long-term memory?”

1.3. Research Objective

Based on the research questions above, the aim of the study is to investigate the effectiveness Duolingo application as educational media for vocabulary and grammar retention of teenager students both in short-term and long-term memory with using immediate measurement and longer measurement.

1.4. Significance of the Study

According to the background and problem formulation that has been described, in general this research provides practical benefits in learning and teaching English, especially in effecting vocabulary and grammar retention for students. The target benefits here are not only for teachers and students, but also for future researchers.

1. For students, this research can increase their English vocabulary and grammar retention because it is done regularly.
2. For teachers, this research can be used as a technology-based English language learning media in the form of applications with games and learning elements, so students are less likely to get bored easily and teaching will be more varied.

3. For future researchers, this research can be used as a reference related to the Duolingo application in vocabulary and grammar, especially in term of students' vocabulary retention.

1.5. Scope of Study

This research focuses on the application of the Duolingo application to increase students' vocabulary and grammar retention. The research subjects were taken from two classes of seventh grades in one of Islamic Junior High School in Malang. The reason why the researcher chose this subject is because the samples already represented students' problem. One of the students' problems is in vocabulary and grammar retention either in short-term memory or long-term memory. Treatment was given to students by means of participants downloading the application on their respective devices. Then, students created accounts using their respective emails. The treatment was carried out for two months and every week there was one meeting. Participants carried out a pre-test before being given treatment as an initial measurement, post-test in immediate measurement and post-test in long measurement as a final measurement. The pre-test and post-test consist of 50 multiple choice questions. Each question have about one minute.

1.6. Hypothesis

As a hypothesis in this study, the use of the Duolingo application has no significant effect on increasing students' vocabulary and grammar retention. If the researcher can refute the null hypothesis, the researcher finds a hypothesis (H1) is the accuracy of vocabulary and grammar retention in students both short-term memory and long-term memory after using the Duolingo application.

1.7. Definition of Key Term

The terms used in this study need to be explained briefly and clearly to avoid misinterpretation. The definition is as follows:

1. Vocabulary: Vocabulary is all the words that a person uses or knows when they are talking about particular subject in particular language.
2. Grammar: Grammar is the whole system and structure of a language or of languages in general, usually taken as consisting of syntax and morphology (including inflections) and sometimes also phonology and semantics.
3. Vocabulary retention: Vocabulary retention is demonstrated the ability to memorize or recall information after certain period of time.
4. Grammar retention: Grammar retention is the ability to maintain and recall systems and structures of a language.
5. Technology: Technology is the use of scientific knowledge for practical purposes in human life, or it can be described as the application of scientific understanding to transform and control human activities.
6. Duolingo: Duolingo is an American educational technology company that creates learning apps and offers language certification.

CHAPTER II

THEORETICAL FRAMEWORK

This chapter discusses about definition of vocabulary, memory retention, various types of learning media, the Duolingo application, and previous studies.

2.1. Definition of Vocabulary

Vocabulary is a central component of language acquisition, essential for language learning. To acquire all aspects of language skills, people need to have a variety of vocabulary (Nurchurifiani et al., 2021). Vocabulary refers to the entire of words that a person understands or that are present in a language, with each word representing a particular idea or concept. To effectively utilize vocabulary, one must not only understand the meaning of words but also be capable of incorporating them into sentences (Hariati, 2020). Vocabulary is a tool for generating thought, and lack of vocabulary has a negative impact on thought formation. Vocabulary not only used to explain but also to ensure understanding. It is impossible to understand what you are read or what is being said if you don't know the meaning of words (Güven, 2018). Therefore, vocabulary is the crucial tool for someone if want to learn a language because people need variety of vocabulary to speaking, listening, writing and reading.

Emphasizing the importance of vocabulary in communication, it is argued that survival-level communication can be understood to a large extent by simply arranging words without applying grammatical rules. In this sense, vocabulary can be considered as one of the key factors that greatly influence how people communicate. Therefore, vocabulary should ideally be considered as an important aspect of language learning and should be given much attention in TEFL practice

to improve students' vocabulary acquisition (Asyiah, 2017). Students can expand their vocabulary both formally, through course readings, and informally, through interaction with others. The theoretical foundation of empirical research highlights the practical aspects of vocabulary acquisition in both first and second language (Khoshsima & Khosravi, 2021). Hence, students' vocabulary knowledge is needed in communication even though without thinking and applying grammatical of what they said.

2.2. Teaching Vocabulary

Teaching vocabulary is classifies into two approaches. There are implicit vocabulary teaching and explicit vocabulary teaching. Implicit vocabulary teaching is a learning process in which language students acquire vocabulary unconsciously, indirectly, and through contextual cues. In this approach, vocabulary is absorbed naturally as students engage in activities like reading or listening to music, where they process the information incidentally. In contrast, explicit vocabulary teaching involves the intentional and systematic acquisition of vocabulary, requiring students to be conscious of the learning process. The method aims to foster a direct approach to vocabulary learning, where students actively predict responses, analyze, and reflect on their understanding and outcomes. Explicit vocabulary teaching occurs when you memorize a set of facts and place a heavy load on the working memory. Therefore, it is a conscious process of acquiring knowledge (which is characterized by an explicit form and is symbolic in nature).

However, there is a disadvantage of an implicit vocabulary teaching. The disadvantage of implicit vocabulary teaching is taking times so long. Teachers need to be prepared for this. Unprepared instruction and less appealing interaction create

confusion in the classroom. Despite its limitations, implicit learning has several advantages. Implicit learning has been linked to several areas, including artificial grammar learning, sequence learning, control of computer-simulated dynamic systems, and probability learning. In contrast, explicit vocabulary learning, which focuses on the natural connection between language form, meaning, and usage, involves three additional strategies that seem effective for learning. These are form-based explicit instruction, semantic-based explicit instruction, and rule-based explicit instruction. Form-based explicit instructions involves directly teaching vocabulary form, such as free morphemes, combined morphemes, and spelling. Meaning-based explicit instructions focuses on conveying the intended meaning of vocabulary. Lastly, explicit rule-based instructions refers to teaching vocabulary based on the rules governing its usage (Dakhi & Fitria, 2019; Shiva Kaivanpanah, Is'haaq Akbarian, 2021).

To combine explicit and implicit instruction, it examines the impact of interactive output tasks in improving EFL learners' vocabulary knowledge. It tested the hypothesis that students would have higher vocabulary acquisition when taught using an input-output teaching style, compared to an input-only approach. Specifically, students who engaged in both output and input tasks performed significantly better on the vocabulary post-test compared to students who were in the input-only group. These results were observed on both the overall vocabulary test and the production portion of the test.

In most cases, the effectiveness of one strategy over the other depends on the nature and purpose of the learning. Each strategy of teaching vocabulary has a few

advantages. Therefore, combining these two strategies may improve vocabulary learning and retention.

2.3. Definition of Grammar

Grammar occupies a fundamental role within the components of language learning. It serves as the core of both language instruction and acquisition, functioning as the system of rules that governs linguistic structure. Derived from the patterns inherent in a language, grammar enables individuals to comprehend written texts and to construct meaningful expressions in both spoken and written forms. It facilitates the production of coherent communication through its influence on word classes, clauses, sentence structures, and morphemes. Moreover, grammar is intricately linked to the generic structure of discourse. As the foundation of key language skills—listening, speaking, reading, and writing—grammar significantly contributes to the comprehension and articulation of spoken language, particularly in the domains of listening and speaking (Andriani et al., 2021).

In terms of its definition, it is evident that to become proficient language users, students must acquire a strong command of grammar, as this knowledge enables them to construct more effective linguistic structures and convey meaningful messages. While students recognize the importance of grammar in enhancing their language skills, they also acknowledge that the process of learning grammar can be challenging (Utomo & Ahsanah, 2020). Moreover, students may be motivated to improve their English grammar and overall language proficiency for various purposes or functions within the learning process. These functions serve to address students' physical, emotional, and social needs, as well as to facilitate the clear expression of their feelings about their surroundings (Lin et al., 2020).

2.4. Teaching Grammar

Teaching grammar is a critical component of teaching English as a foreign language and plays a pivotal role in the classroom. Through grammar instruction, the teacher aims to enhance students' linguistic competence and facilitate their progress in language acquisition. Two primary methods for teaching grammar are the deductive and inductive approaches. The deductive method, in particular, prioritizes the presentation of rules before practice (Obeidat & Alomari, 2020). In this approach, the teacher assumes a central role in the teaching process, which is often referred to as a teacher-centered method. The teacher explicitly presents the rules and principles governing language structure, guiding students in the derivation of these rules. Students rely on the teacher's continuous support to formulate sentences, reinforcing the teacher-centered nature of this method. The deductive approach typically moves from the general (learning and memorizing rules) to the specific (applying rules in examples). In this method, the teacher provides students with detailed explanations of grammatical rules prior to their application in writing exercises. Following the lesson, students are expected to practice and internalize the rule through structured exercises and worksheets (Rauf et al., 2023).

Otherwise, the inductive approach involves presenting specific examples that illustrate a grammatical rule, with the expectation that students will deduce the rule from these examples. This method is considered more effective for retaining the rule, as it connects the rule directly to practical instances, in contrast to explanations that are detached from examples. Often referred to as a student-centered approach to teaching grammar, the inductive method positions the teacher as a facilitator and guide, while students actively engage in the learning process. Students are

encouraged to identify grammatical structures and rules through the analysis of examples, seeking teacher guidance as needed. This approach promotes active participation and interaction, fosters critical thinking and debate among students, and supports a deeper and more durable understanding of language structure and formation.

Deductive and inductive approaches have several advantages and disadvantages. The advantages of deductive approach are the deductive approach is direct and efficient, often saving time by enabling quick and clear explanations of rules, particularly those related to form. This efficiency allows for greater focus on practice and application; It aligns well with the cognitive abilities and maturity of many adult learners, recognizing the role of cognitive processes in language acquisition; This method provides flexibility for the teacher, allowing them to address language points as they arise, without the need for extensive preparation of materials in advance. The disadvantages of deductive approach are initiating a lesson with a grammar presentation may be difficult for some students, especially younger learners, who may lack the necessary language to comprehend the rules. Consequently, they might struggle to understand the grammatical concepts being explained; The approach tends to promote a teacher-centered, transmission-style classroom, where the teacher's explanations dominate, limiting student involvement and interaction; this method may foster the misconception that language learning is solely about memorizing rules, overlooking the importance of practical application and context.

In the other hand, the advantages of inductive approach are learners who discover rules on their own (student-centered approach) often gain a deeper

understanding of how and when to use grammatical structures, making the rules more meaningful, memorable, and effectively acquired; Students engage more actively in the learning process, shifting from passive listeners to active participants. This increased involvement often leads to greater attention and motivation; By encouraging students to work through rules independently, the inductive approach promotes self-reliance and autonomy, preparing students for greater independence in their learning. The disadvantages of inductive approach are the process of guiding students to discover rules can be time-consuming and require significant energy, the time spent on rule discovery may detract from opportunities for students to practice and apply the rules productively, teachers are often required to invest considerable effort in lesson planning, carefully selecting and organizing examples to ensure students can accurately deduce the rules while ensuring the data remains comprehensible, the inductive approach may frustrate students who prefer a more direct explanation of the rules, rather than engaging in the discovery process themselves (Abdukarimova & Zubaydova, 2021).

2.5. Drill Technique as Vocabulary and Grammar Mastery Technique

Drills are valuable tools in foreign language instruction, providing students with opportunities to actively apply what they have learned. The drill technique is primarily employed to help students practice and refine their pronunciation or sentence structure through repetitive exercises. This method is based on the principle that language acquisition is a process of habit formation. According to this principle, frequent repetition of a task leads to stronger habits and, consequently, better retention and learning (Zumrah & Manurung, 2021). Another perspective defines the drill technique as a teaching method that utilizes dialogues to reinforce

students' habit formation. This is achieved by focusing on repetition, memorization of grammatical structures, and transformations in tenses, all within the context of the target language and the culture in which it is spoken (Faidah et al., 2023). In summary, the drill method can be seen as an instructional approach that enhances learning by providing students with repeated exercises, which improve their accuracy, proficiency, and overall language skills.

2.6. Extramural English

The general term Extramural English (EE) is used to refer to opportunities to be exposed to English outside of compulsory education classes. The defining feature of this term is that students approach a foreign language whilst carrying out activities that interest them and with the intention of learning the language. The concept is encourage characterized as learners' primarily voluntary participation in English activities for recreational purposes, where learning is primarily incidental rather than deliberate (Schurz & Coumel, 2022). It is important to recognize that the desire to engage with English does not always have to come from a goal to learn the language. It can happen accidentally or intentionally due to an interest in the subject matter. In today's world, there are many ways to be exposed to English, whether intentionally or unintentionally. These include watching TV shows or movies, searching for information online, watching YouTube videos, playing computer or board games, following influencers, listening to music, or reading English literature. (Beauprez, 2021).

2.7. Memory Retention

Memory itself is related to the capability to retain and recall learned information. The shapes of memory comprise of encoding, retention and recall. The encoding

handle within the human brain permits concrete information to be transformed into a structure that can be stored. That is the initial stage of the formation of modern memory within the human brain (Emad-Ul-Haq et al., 2019). Practically, memory is characterized as the capability to encode, hold, and along these lines keep in mind fabric within the brain. From a mental and neurological perspective, memory is the collection of encoded neural affiliations inside the brain. It is the modifying of past happenings and sharpens by a synchronous terminating of neurons that were terminated at the time of learning (Amin & Malik, 2013).

Retention is the storage of encoded data within the brain. A part of encoding or retention is memory solidification, which stabilizes a memory follow after its introductory arrangement. Neurologically, the consolidation prepare utilizes long-term potentiation; it fortifies the neural connections by extending the number of signals that are sent and gotten between the two neurons. Therefore, the meaning of memory retention is the capability of the human mind to retain information in the brain for different periods of time, depending on the type of memory and stimulation, repetition of recall, level of attention and emotions. During recall, people remember stored materials (e.g. a stimulus and an event) in the brain through one or more responses to an external stimulus.

2.8. Types of Memory Retention

According to several researchers that research in memory retention, generally, there are two sorts of memory retention. Those are short-term memory and long-term memory retention.

a. Short-term Memory

Short-term memory is temporarily storing a small amount of material for a short period of time, typically about seven items for about 7 items - information generated for up to 15 seconds in STM due to attention to sensory memory. Short-term memory stores data or information for a few seconds and its capacity varies from seven to nine items for the average person. It tends to weaken with the age of the person. This model of memory posits that information first enters the sensory register, where it is briefly held before being encoded into short-term memory. If the information in short-term memory is adequately rehearsed, it may be transferred to long-term memory; otherwise, it is subject to decay and lost. Retrieval of information from long-term memory requires that it be re-encoded into short-term memory, from which it can then be accessed. The short-term memory component of this model reflects several key characteristics of the information-processing view of memory: it has a limited capacity, a brief duration, and functions as a temporary buffer for storing information. Information in short-term memory is susceptible to being forgotten if attention is diverted.

A common method for measuring the capacity of short-term memory is to assess the number of items that can be immediately recalled in the correct order. The underlying reasoning for this measurement can be illustrated through an analogy. Consider attempting to determine the capacity of a bucket by placing apples into it. When seven apples are placed in the bucket, they fit without issue. However, adding an eighth apple causes one to fall out, thus revealing the bucket's capacity to be approximately seven apples. Although variations such as positioning the apples differently or using larger apples might influence

the outcome, repeated trials with various apples typically yield a consistent estimate of the bucket's capacity—roughly seven, with a margin of error of plus or minus two. Applying this analogy to short-term memory, the capacity is inferred by continuing to place information into the memory store until some of it is "lost" or cannot be recalled accurately. This process provides an estimate of how much information short-term memory can hold.

b. Long-term Memory

Long-term memory is the collection of information over long periods of time; Includes boundless amount of information. Long-term memory stores boundless information for an infinite period of time. Information can relate to individual occasions, the temporal and spatial relationships between those occasions, and real-world substances and their implication, such as symbols, words, and concept.

Across the developmental trajectory from early childhood to adolescence, the most significant improvements in long-term memory are observed in the ability to consolidate and retrieve information independently, without external prompts. While memory processing naturally becomes more efficient and effective with age, the development of metamemory and strategic processing also plays a critical role in this enhancement. Unlike short-term and working memory, the maturation of long-term memory is less focused on the expansion of basic capacities and more on the refinement of memory processes through the use of effective strategies. Additionally, better long-term memory performance is associated with the accumulation of stored knowledge over time.

Dehn (2010) emphasized that students tend to retain information most effectively when they are periodically tested on newly learned material. Repeated testing fosters long-term retention by requiring the retrieval of previously studied information. As knowledge becomes more consolidated and retrieval pathways become more established, the intervals between retesting can be lengthened. More challenging learning tasks, although potentially slowing initial acquisition, are particularly beneficial for long-term memory storage. Strategies that make the initial learning process slower and more effortful generally lead to better long-term retention. Rapid acquisition of information does not necessarily ensure its long-term retention or accessibility, as the creation of durable, retrievable memories requires both time and effort.

The differences between short-term memory and long-term memory refer to Cowan (2008) and Norris (2017) are:

1. The duration. Duration of short-term memory is shorter and can disappear easily. Whereas long-term is longer. Short-term memory is based on a incidentally actuated subset of information in long-term memory, and this enacted subset can decline over time if not updated, although evidence for this decline is tentative at best.
2. The capacity. Short-term memory is able to store complex representational structures that have never been experienced some time recently. However, if long-term memory is store of type representations, short-term memory cannot work essentially by actuating long-term types.

2.9. Definition of Learning Media

Learning media is a document or device specifically utilized as a implies of transmitting messages among teachers and students to implement teaching and create conditions for students to achieve educational goals and learn (Maulina et al., 2022). According to Milawati (2021), learning media refers to anything used as a means of connection between the information provider (the teacher) and the students, aiming to encourage and engage students in the learning process in a meaningful and full way. This involves five key components. First, learning media functions as a medium to convey messages or content during the learning process. The second is that learning media serves as a valuable learning resource. Third, learning media motivate students to be actively involved in the learning experience. Fourth, they are effective tools for achieving deep and meaningful learning outcomes. Lastly, they offer resources for acquiring and improving skills. When these five components work together effectively, they contribute to the successful achievement of learning objectives.

2.10. Types of Learning Media

The types of learning media that support teaching and learning activities greatly vary. It is divided into three; there are visual, audio and audio visual (Fadilah & Kanya, 2023).

a. Visual

Visual media can only be observed with the elements of sound and images or we can enjoy it as a spectacle, in the form of images, paintings, photographs, and others. Visual media is media that provides concrete or intangible images that are real and direct so that they can be felt by students in their five senses.

This can be said to be media that combines news and ideas through image media. The media used is good for dense news and so on.

b. Audio

Audio media is media that can convey messages/information using sound so that it can be received by the listener's senses. In other words, audio media is media that only provides sound stimulation or the content of the message conveyed is only received with the sense of hearing. Examples of audio media are radio, audio, telephone.

c. Audio-Visual

Audiovisual media is media that contains elements of sound and images. This is a combination of two methods that have elements of sound images and can take the form of video films and so on. Three-dimensional media that can convey information in the form of sounds that can be heard and images that can be seen, at the same time, so this media is often called visual media. Audio visual media is a mixture of audio media and visual media, namely audio visual media has two elements, namely picture with sound. In utilizing this media, the visual and auditory senses are also used in one process. This visual media can also be in the form of films, LCD projectors, videos and television.

2.11. Benefits Using Learning Media

Media is one of the instruments or tool used by teachers in an effective learning process to convey teaching material to students. According to Rohani (2020), the benefits of media within the educating and learning process as follows:

First, it can help make learning easier for students and easier teaching for teachers. The utilize of media in learning activities will give numerous benefits, on

the one hand it will make it less demanding for students to understand the subject matter being taught because students can directly interact with the objects that are the material of study. On the other hand, the use of teaching media can represent concepts that may not be effectively communicated by the teacher through verbal explanations, thus helping to overcome students' difficulties in understanding certain concepts and principles. Even the presence of the media is acknowledged to produce good feedback from students.

Second, through tools, abstract teaching concepts (themes) can be realized in concrete form. It is very necessary to use teaching media in learning, especially abstract subject matter which is difficult for every student to digest and understand especially complicated and complex subject matter. This is related to the subject matter in which there are a number of concepts that are still abstract, for example to explain the human blood circulatory system, the process of rain, the process of a solar eclipse, etc., sometimes to explain and describe it through words. The words are very difficult, so students find it difficult to understand them. To make difficult to understand subject matter clear and easy, media is needed. Therefore, teaching media is a means used so that learning can take place well, streamline and smooth the way towards achieving the learning goals that have been set.

Third, teaching and learning activities are not boring and not monotonous, one of the factors causing the low absorption capacity and level of understanding of students in receiving lessons, especially in subject matter that has a high level of difficulty which is difficult for students to process, due to the teacher's lack of knowledge about variations in teaching only using one type of method such as the lecture method where students are only listeners. Not to mention, if the material

presented is not of interest to students, they will quickly feel bored and exhausted, and they cannot avoid this. This is because the teacher's explanation is difficult to digest and understand. A wise teacher is certainly aware that students' boredom and fatigue stems from the teacher himself. For this reason, teachers are required to equip themselves with knowledge and skills in determining teaching strategies. One way is by using teaching media. This can make learning activities more interesting and on the one hand, make lessons less monotonous and boring for students.

The last, all sensory organs can interpret and participate in dialogue so that the weakness of one of the senses can be balanced by the strength of other senses. Learning activities accompanied by the use of teaching media will make it less demanding for students to understand the teacher's explanation using teaching aids. Because of receiving lessons, apart from using the sense of sight (eyes), teachers also use the sense of hearing (ears). Each student has different sensory abilities, both hearing and sight, likewise, speaking ability. There are students who prefer and enjoy reading, there are those who prefer to listen first before reading, and vice versa.

2.12. ICT (Information and Communications Technology) as Learning

Media

The phrase “information and communications technology” (ICT) refers to technologies that facilitate the technology transmission, processing, storage, creation, display, share, or exchange information. This broad definition of IT includes technologies such as radio, television, video, DVDs, landline and cell phones, satellite systems, computer hardware and software, and networks. It also

covers related devices and services related to these technologies, such as video conferencing, email, and blogs (Adulkareem Alkamel et al., 2018).

The integration of ICT results in considerable transformation in the teaching and learning process. Traditional pedagogical approaches predominantly emphasize content delivery, with course materials historically centered around textbooks for many decades. Teachers teach content through presentations and activities aimed at enhancing content knowledge. Contemporary teachers are tasked with developing relevant and engaging learning experiences for their students. Technology significantly contribute to creating inclusive educational environment, with the potential to enhance student learning outcomes. Additionally, the use of ICT enable a shift from traditional teacher-center methodologies to a more student-centered approach. ICT-assisted learning promotes learner participation. The constructivist framework views learning as both authentic and centered around the student. Within this constructivist approach, ICT serves as a powerful resource, enabling educators to design simulated learning environments for their students (Bindu CN, 2016). The contemporary curriculum promotes student aptitude and achievement by prioritizing the application of information over mere factual knowledge. ICT supports the dissemination of knowledge in alignment with current curricular standards. Therefore, incorporating ICT into teaching will help both teachers and students as it has the potential to impart quality education if used effectively.

There are several analysts who have examined the benefits of utilizing ICT in educating English. There are seven preferences of utilizing mixed media innovation in educating and learning English, they are; persuades students to memorize

English, enhances their communicative competence, extends students' information around the culture of English, improves teaching efficiency, upgrades interaction among understudies and between teacher and students, makes a conducive educating environment within the classroom, gives openings for English instructing exterior the classrooms.

2.13. MALL (Mobile Assisted Language Learning)

The technological revolution has brought significant changes. Technological advances have made it easier for people to work, communicate and learn. Computers have transformed into smaller devices, such as cell phones, smartphones and tablets. The widespread use of mobile phones among language learners has contributed to the emergence of MALL (Mobile Assisted Language Learning). Learning through mobile devices is still a relatively new idea. MALL refers to an approach to language learning that is supported and enhanced by portable mobile devices. This type of learning occurs when students frequently change their learning environment, rather than remaining in one fixed place (Islam & Hasan, 2020).

MALL is an innovation, similar to CALL (Computer Assisted Language Learner). The changes include MALL now being used on mobile phones and CALL being used on computers, providing greater support for situated learning and providing students with a valuable learning tool. MALL offers teachers and students the opportunity to simplify teaching and learning by combining many features in one device. The mobility and accessibility of mobile phones gives teachers and students more opportunities to learn and communicate more comfortably (Elfiona et al., 2019). MALL capitalizes on the enhanced mobility, accessibility and flexibility attributes offered by mobile technology. This approach facilitates learning that is

independent of location, time and space, allowing it to align with students' interests and schedules. It contextualizes language learning within the environments in which it occurs, enabling mobile learners to engage and interact with their surroundings during learning task. Therefore, MALL emphasizes the development of innovative learning methods. The increasing use of mobile and wireless information and communication technologies (ICT) has opened up important opportunities that align with the emerging trends in language teaching. With these technologies, students can engage in learning at any time and from any place. However, utilizing mobile phones for purposes beyond traditional applications, such as podcast, MP3 players, and learning apps, presents a notable challenge at this stage (Helwa, 2017).

2.14. Definition of Duolingo

Duolingo is a free application developed by Luis Von Ahn and Severin Hacker, launched in November 2011. Available for Android and iPhone, it can also be accessed on PC, albeit with slightly different features. This platform serves as a comprehensive language learning resource, offering both a website and an app, as well as a digital assessment tool for language skills. Duolingo provides instruction in a wide array of languages and is regarded as a pioneering resource for language acquisition and global communication. Designed to facilitate language learning in an engaging and enjoyable manner, the program employs gamification techniques to create diverse learning experiences encompassing listening, reading, writing, vocabulary, grammar, and speaking. Through its interactive format, Duolingo allows students to grasp language concepts easily, making the learning process enjoyable by incorporating game-like elements. The platform utilizes various

exercises, enabling students to listen, repeat, speak, and translate words and sentences through a user-friendly interface (Purwanto et al., 2022; Sukarya et al., 2022; Tiara et al., 2021).

Duolingo is equipped with a Leaderboard feature to enhance the feeling of competition among students. This feature motivates students to achieve their learning goals, allowing them to see their learning progress and ensuring that they have the potential to progress to the next level. Additionally, the platform also offers a Set Status feature for students to share their learning progress to inspire others. Additionally, students can utilize the Shop feature in Duolingo to activate the Streak Freeze and Double or Nothing features. Streak Freeze feature enables students to preserve their study or note-taking streak and allowing them to maintain a certain level of inactivity throughout the day. Likewise, Double or Nothing allows students to double their bets on five bars by remaining one consecutive week. Additionally, Duolingo also has a profile feature. This feature allows students to complete or edit their profile data, allowing students to check their statistics including information about series, current tournaments, total points and an achievement, presents information related to the game recommendations of the user's friends and followers, and helps the user connect with them. Finally, students can use more features in Duolingo. For example, students can use the Podcast feature that offers many podcasts on different topics. Podcast content not only provides a certain description or discussion on a topic but also provides information related to the culture, traditions, social conditions and other relevant issues of the indigenous people. This allows students to develop their understanding, knowledge and proficiency in the language by accessing podcasts (Irzawati & Unamo, 2023).

2.15. Steps How to Use Duolingo Application

Before using Duolingo application, users must know how to use it. The steps for using Duolingo are illustrated below.

1. First step

First of all, click the Duolingo App. A display will be like the image below.

Then, click “Ayo Mulai.”



2. Second step

In this step, the user is introduced to the partner who will accompany them to learn the language. His name is Duo. Then click “Lanjutkan.”



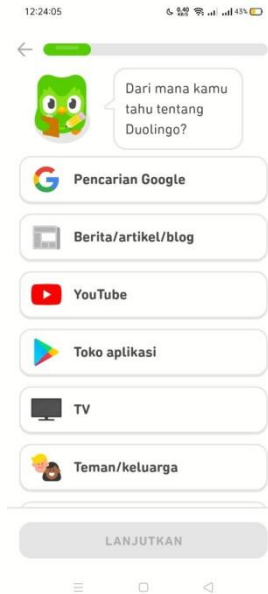
3. Third step

In this step, the user chooses which language to learn.



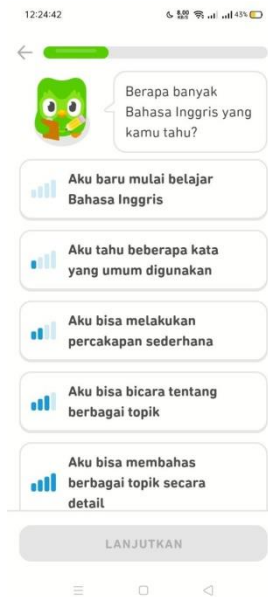
4. Fourth step

In this step, the user is asked how they know the Duolingo application. The user selects the answer listed.



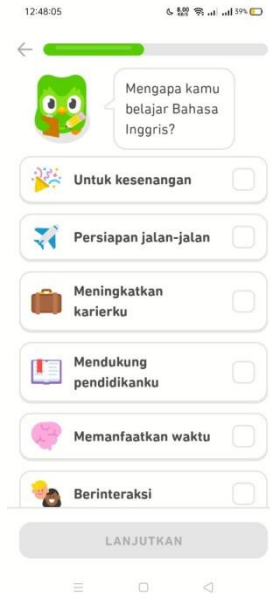
5. Fifth step

In this step, the user is asked questions about their English level.



6. Sixth step

In this step, the user is asked why they are learning English.



7. Seventh step

In this step, the user chooses how long they study English in a day.



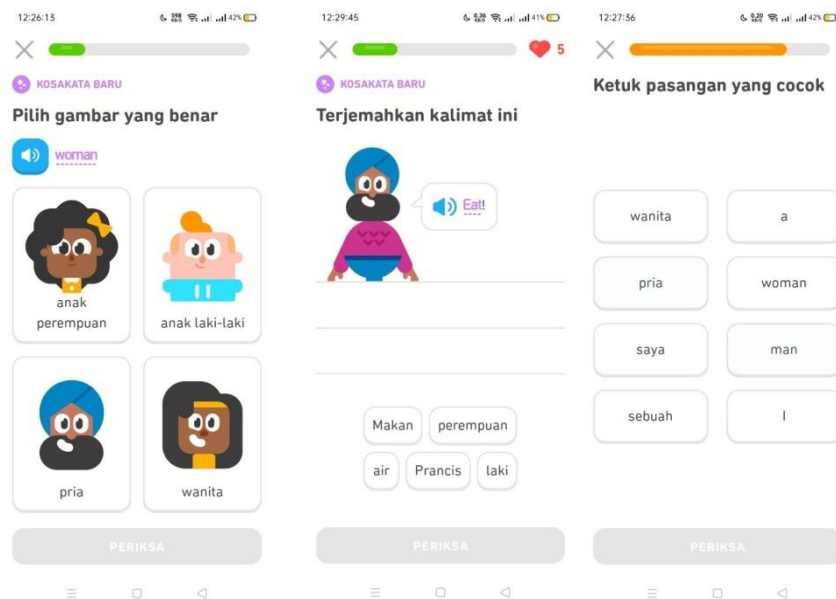
8. Eighth step

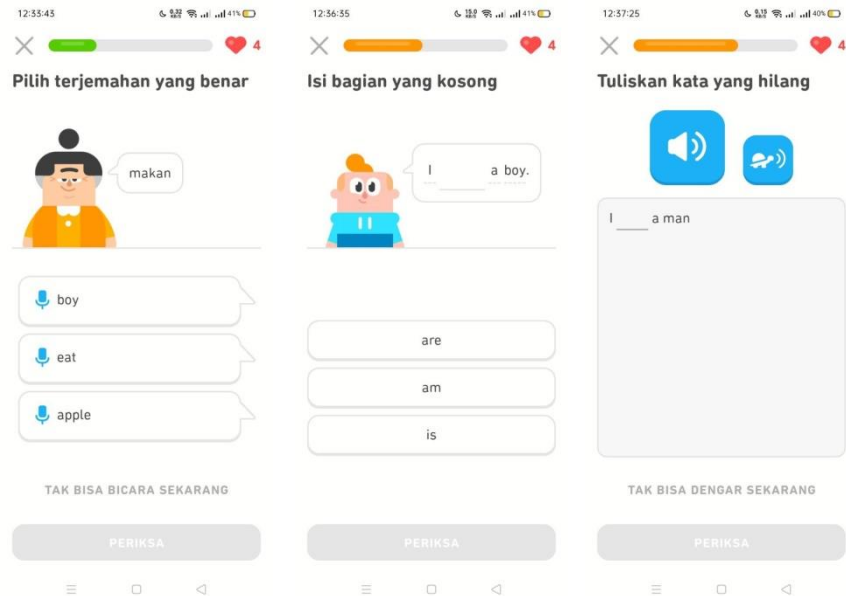
In this step, the application will ask the user about their English proficiency. The user will study English from the basic level or from the level that they stay at. The user chooses one of them according to their ability. Then click “Lanjutkan.”



9. Ninth step

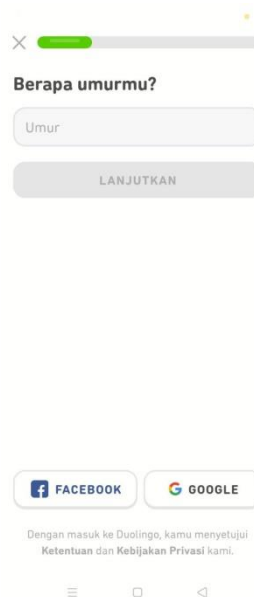
User can work on questions in Duolingo. The following are examples of the types of questions in Duolingo.





So that users do not get a limit when using Duolingo, user need to create an account. User can create an account using Facebook or Gmail account. Here is how to create a Duolingo account if user does not have both.

1. First, fill in the user's age.



2. Second, fill in the user's name.



←

Siapa namamu?

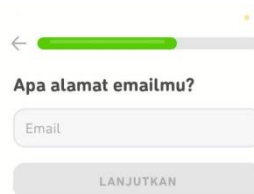
Nama

LANJUTKAN

Dengan masuk ke Duolingo, kamu menyetujui
Ketentuan dan Kebijakan Privasi kami.



3. Third, fill in the user's Email.



←

Apa alamat emailmu?

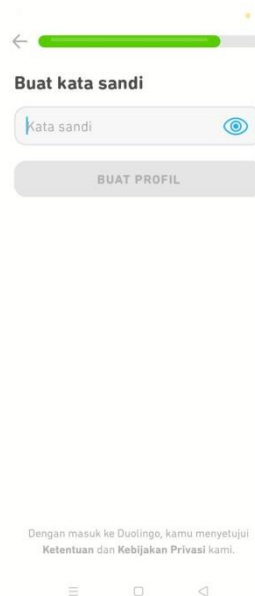
Email

LANJUTKAN

Dengan masuk ke Duolingo, kamu menyetujui
Ketentuan dan Kebijakan Privasi kami.



4. The last, create a password of the Email. Then, the account is created.



2.16. Advantages and Disadvantages Using Duolingo

Duolingo has some advantages and disadvantages. The main advantages of Duolingo are that it is free and easily accessible. The virtues of flexible learning lie primarily in the use of study programs that are independent of time or place, but in the surprisingly effective use of available time. Duolingo can be accessed at any time, as long as there is an internet connection. Therefore, it will not be a waste to try to download it as the students will not suffer financial loss. The design is simple, clear, attractive and less promotional so it does not cause confusion. The content must support video graphics and other multimedia components; it can be displayed as an interactive game or puzzle. Duolingo has a game concept that produce learning fun. Students can compete with their friends on leaderboards by earning points, which will give them rewards in the form of bars when they complete certain exercises. As a result, it is powerful enough to motivate students to continue practicing. The Duolingo application provides numerous advantages, including user-friendly settings, clear input mechanisms, great reviews, and flexible

scheduling options. Students exhibit significant interest and enthusiasm for the platform when it is introduced. Additionally, Duolingo facilitates a clear comprehension of the material and allows for learning at any time, enabling students to engage with challenging and stimulating lessons in each subject during their available free time (Savira, 2020). Additionally, Duolingo is interactive and offers many options for exercises such as listening, vocabulary, grammar, and pronunciation. Thus, students can know how to pronounce words properly and can enrich our fluent vocabulary and also increase our grammar level.

Despite its advantages, Duolingo also presents certain disadvantages. The application requires an internet connection to function effectively. Connectivity, in the context of mobile technology, pertains to the ability of mobile devices to connect wirelessly through various access technologies, such as GPS, EDGE, GPRS, GSM, 3G, 4G, WiMAX, Wi-Fi, and WLAN. Consequently, Duolingo may be ineffective for users in remote areas lacking internet access. Furthermore, during listening exercises, students are required to transcribe what they hear, but the audio often features unnatural pronunciations and sometimes peculiar phrases. Additionally, when students encounter new material, they may need further explanations for comprehension; however, the platform does not provide grammatical explanations, necessitating that students independently grasp grammar rules. Moreover, Duolingo lacks several features found in more advanced computer-assisted language learning (CALL) programs. When students answer questions incorrectly, the application simply displays the correct answer without allowing them the opportunity to correct their mistakes before progressing to the next question (Pramesti & Susanti, 2020).

2.14. Previous Study

This section includes several studies with the same discussion about vocabulary and grammar retention. The researcher takes the different media used and different platform to find the gaps of these studies.

First is the study from Phoung and Nguyen (2017). This research used experimental design. The samples of the study was 50 adult learners from English center in Vietnam with age ranging 18 to 30. The result of this study was the use of boardgame was beneficial to adult learners' grammar retention.

Second, the research conducted by Güven and Bekdaş (2018). This study used an experimental design with a pre-test, post-test, and retention test for the experimental and control groups. The participants consisted of 50 students from a preparation class at a high school in Tokat during the fall semester of the 2015-2016 school year. The findings of the study showed that there was no significant difference between the pre-test scores of the students in the experimental group and the control group. Based on the pre-test results, it can be concluded that there is no significant difference in the vocabulary knowledge of students in both groups. Although the vocabulary activities used were different for each group, both groups were observed learning the material. Similarly, there was no significant difference in the post-test scores between the experimental and control groups. The post-test results showed that there was no significant difference in vocabulary knowledge between the two groups. Despite the different vocabulary activities, both groups were successful in learning the content. However, when comparing the mean scores, the experimental group achieved significantly higher scores. According to

this result, it can be interpreted that the utilize of comics is more effective for students' learning.

Third, the study written by Nhan and Yen (2021). The researchers used experimental research with two group pre-test post-test design. The participants were 36 males and 24 females of English Center in SoC Trang city with age from 17 to 18. The result showed that students were able to learn more easily by using infographics, also it can motivate students to practice grammar and improve their grammar level.

Fourth, the article wrote by Anh et. al. (2021). The writers used quasi-experimental method. The instruments were pre-test and post-test and designed based upon objective KET (Cambridge Key English Test) Student's book by Capel and Sharp (2010) and Cambridge Placement test (2010). The participants were 36 elementary EFL learners. Most of them were students from universities and colleges, and others worked for companies in the city. The results showed that the vocabulary memory ability of participants in the experimental group improved significantly, with the same improvement observed in the control group. This suggests that the vocabulary teaching method used in the control group was as effective as that used in the experimental group in terms of vocabulary retention. In other words, it shows that learners' ability to retain vocabulary increased regardless of whether story-based activities were used in teaching, which suggests that the impact of these activities on vocabulary retention is very strong.

Fifth is the research article written by Ta Na and Trang (2022). The writers used quasi experimental design that the control group taught with the traditional vocabulary teaching method (without using pictures) and the experimental group

taught using pictures. The samples were 70 students' sixth graders at Khmer boarding secondary school in Duyen Hai. The result of this research showed that both groups lacked knowledge of these vocabulary words and had fairly low scores. The author then developed individual lesson plans for each group. One group benefited from using pictures to teach the target vocabulary, while his other group received lessons using traditional methods. This intervention took place over his 10 weeks, with all students participating during the first semester. The results showed that both groups of students made significant gains when taught using picture strategies and when taught without picture strategies. This shows that the students worked together and both methods worked well. The only difference was that students in the experimental group appeared to perform slightly better than those in the control group. Since the reason of this study was to test students' ability to hold words learned in both classrooms, the authors had students in both groups complete a delayed posttest. Everyone was welcome to participate and both groups definitely had good results. However, their ability to retain vocabulary appears to be weakened. After two weeks, they were not able to complete the test as well as they did the posttest. The researcher's second question revealed that students agreed with the usefulness of using pictures to teach vocabulary. All questions were rated as "agree" on a scale of 4, and he only had one statement that was rated as "agree" although it was close to a scale of 4. Therefore, images not only help improve learners' ability to better remember the vocabulary learning process, but also increase learners' motivation to learn a language.

Sixth is a study from Mansoor et. al.(2022). Quantitative approach was used in this study. The writers' instrument only focused on a particular vocabulary while

teaching the story. The samples were 40 students from the EFL at Jalna college, Dr. Babasaheb Ambedkar Marathwada University (BAMU), Aurangabad, India. The result of this research mentioned students respond positively to memorizing and retrieving vocabulary through a short story. The researchers found that the students demonstrated high memory and accurate use of appropriate words. Researchers discover that, in general, 80% of students were able to retain and remember vocabulary through the use of a short story. However, around 20% struggled with vocabulary and word recall. Teaching English through short stories encourages students to perform better and develop skills in memorizing new vocabulary. Surprisingly, the students showed great interest in learning through short stories. They remained engaged and active throughout the lesson. In line with the research hypothesis, short stories help students in remembering and retaining vocabulary effectively. This helps students clearly visualize the meaning of vocabulary.

The seventh is a study from Khoshsiman and Khosravi (2022) about using application for vocabulary retention. This study used a quasi-experimental design with three groups: one group using WhatsApp-based vocabulary instruction, one group using Anki-based instruction as the experimental group, and one group of traditional instruction as the control group. The instruments used were the solution placement test, pre-test, and post-test. The samples consist of 60 EFL learners at Zabansara English Language Institute in Isfahan. Their age range was 16 to 22. The findings from this study show that integrating technology such as Anki and WhatsApp into vocabulary learning can improve vocabulary retention among the tested groups. This confirms the importance of technology in education. The results show that new mobile and internet applications, particularly WhatsApp and Anki,

provide better opportunities for EFL learners to learn vocabulary. The better performance of the experimental group can be contributed to the increased interaction they had with their peers.

Eighth, the study from F.S Wazeer (2023). The writer used mixed method research (both quantitative and qualitative). In quantitative research, the researcher used experimental design. The instruments of this study were interviews and questionnaires, pre-test and two post-test. The samples of this study were 90 students grade six at all science college, Gale. The findings of this study were positive response of the experimental group in term of behavioral, cognitive, and emotional engagement. It concluded that language games were more effective in retaining grammar in the long-term while the traditional teaching method provides less effective in achieving same results.

Ninth is the study by Le and Loung (2023). The researchers used both qualitative and quantitative methods. Data were collected through vocabulary tests, questionnaires, student self-evaluation lists, and student reflections. The sample consisted of 18 students from all classes in a language center. The result showed that learners had positive attitudes towards the learning experience using flashcards. Most students seemed engaged, motivated and satisfied with the flashcard lesson with some even offering to recite parts of the game or suggesting the use of flashcards to teach additional vocabulary. In their reflections, most students mentioned that their learning experience was enjoyable because of the interactive activities, such as creating and designing their own flashcards. Data from vocabulary assessments, surveys, student self-assessment checklists and reflections all support the hypothesis that students retain more vocabulary when teachers use

flashcard-based vocabulary teaching strategies. Although there were some challenges with this learning tool, all participants agreed on the importance and effectiveness of flashcard-based strategies for vocabulary retention.

Lastly is the study from Sang and Dan (2025). This research used experimental design with pre-test post-test. The participants of this study were 92 students tenth-grade at Go Den high school in Long An Province, Vietnam. The result of this research revealed a significant improvement in grammar retention as well as positive shift in their attitudes toward grammar instruction using task-based activities.

Regarding to the previous study, the researcher wants to prove that Duolingo as the other ways to enhance students' vocabulary and grammar retention besides using a pictures, caricatures, board games, infographics, and short stories as the effectiveness enhancing vocabulary and grammar retention. This research is expected to have impacts for students' achievement in vocabulary and grammar retention, looking at previous studies that were successful when researching another mobile applications as a medium for improving students vocabulary specifically in retention or retrieving. Beside that, researcher found some gaps in the research. The gaps of this research regarding the previous study above are researchers did not take the samples in the junior high school, they took samples in college student or random samples. Most of the research did not used technology to prove the students' vocabulary retention. The other hand, previous studies did not prove that their teaching media can increase students' English vocabulary retention.

CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses research design, research population, time and setting of the research, research variable, data sources, research instrument, validity and reliability of research, data collection, and data analysis

3.1. Research Design

This research uses a quantitative research approach. According to Priadana (2021), quantitative research entails a systematic investigation of a phenomenon through collecting measurable data, which can be analyzed using statical, mathematical, or computational method. Typically, this research approach is conducted with a sample size that is determined in relation to the larger population under study. The sample size is calculated using a certain formula. This study uses experimental research methods. Experimental research is a type of quantitative research that actively manipulates one or more independent variables while controlling other relevant variables to evaluate the effect of such manipulation on the dependent variable.

In this study, researchers used quasi-experimental design. A quasi-experimental design is an experimental study that is developed due to difficulties in obtaining a fully functioning control group by controlling external variables that may influence the experiment (Rukminingsih et al., 2020). Quasi-experimental design is characterized by the inclusion of at least two groups: an experimental group and a control group. The execution of the research in the quasi-experimental group is as follows:

1. The group treatment. The experimental group receives treatment through specific learning strategies (Duolingo), whose effectiveness is to be tested. Meanwhile the control group is also treated with existing learning strategies.
2. Then both groups undergo a final assessment, referred to as a post-test.

This research overview could be described as follow (Rumaningsih, 2020).

Table 3.1 Description of quasi-experimental pre-test and post-test design

Group	Pre-test	Treatment	Post-test
Experimental	Y1	X	Y2
Control	Y1	-	Y2

The table above illustrates that the study was divided into two groups: an experimental group and a control group. Both groups were given a pre-test before treatment and a post-test after treatment. The purpose of this experiment was to assess the impact of variable X, specifically Duolingo, on variable Y, vocabulary and grammar retention.

3.2. Research Population

The population or subject of this research is seventh grade students of Islamic Junior High School (MTs.) in Jabung, Malang. It consists of two classes, each class consist 21 students and divided into two groups, experimental group and control group. The reasons' researcher selects this subject because it represents the whole junior high students as teenager students (around 13-15 years old). Also researcher had observation before field work and the learning media had not use an application for English lesson.

3.3. Time and Setting of The Research

This research is conducted in Jabung district, Malang Regency, East Java. The setting is chosen because the school had never used mobile applications for teaching English. The researcher will do observations, pre-test, give treatments to students and post-test for immediate measurement, and post-test for longer measurement. The treatment is given three times because the researcher used one unit for the 3 meetings with a treatment period per meeting of around 30 minutes.

Table 3.2 Schedule of the Research

No.	Activity	Date	Description
1.	Observation	31 st , October 2024	Interviews with teachers and students.
2.	Pre-test	6 th , November 2024	Students are given pre-test. After pre-test, students create a Duolingo account on their respective devices and given a briefing what they will do for the next meeting.
3.	Treatment 1 + post-test (immediate measurement)	11 th , November 2024	Students work on basic vocabulary in Duolingo (pronoun, basic verb, etc). After doing that work, students is given post-test questions immediately to measure students' knowledge after

			treatment and their short-term memory.
4.	Treatment 2 + post-test (immediate measurement)	13 th , November 2024	Students continue what they work before. After doing that work, students is given post-test questions immediately to measure students' knowledge after treatment and their short-term memory.
5.	Treatment 3 + post-test (immediate measurement)	23 rd , November 2024	Students continue what they work before. After doing that work, students is given post-test questions immediately to measure students' knowledge after treatment and their short-term memory.
6.	Post-test (longer measurement)	26 th , November 2024	Students are given post-test questions to measure students' long-term memory of the vocabulary taught.

3.4. Research Variable

In this section, the researcher will discuss about independent variable and dependent variable.

3.4.1. Independent Variable

Independent variable is one that causes or affects the dependent variable (Kasiram, 2008). Independent variable gives the effect to dependent variable. The independent variable in this study is Duolingo Application.

3.4.2. Dependent Variable

The dependent variable is defined as a variable that is affected by the independent variable. It is the variable that experiences the impact of the treatment applied to the independent variable. In this study, vocabulary and grammar retention is identified as the dependent variable.

3.5. Data Sources

Data source is a place where data is obtained using certain methods in the form of humans, artifacts, or documents. Theoretically, the data collection process is crucial in establishing the validity of research findings. Therefore, according to validity theory, research results will be unlikely to possess high validity if the researcher commits errors during data collection, a phenomenon referred to as a data collection error (Soesana et al., 2023). Data sources are categorized into two types, primary data and secondary data.

3.5.1. Primary Data

Primary data constitutes the principal data utilized in research, gathered directly by researcher in the field. In this research, the Primary data will be collected from observations made by researchers as observers and responses provided by students as respondents. This research will involve administering tests, including both pre-

test and post-test to the experimental group and control group, and the results were taken as the researcher's primary data.

3.5.2. Secondary Data

Secondary sources refer to sources that do not directly supply data to data collectors; instead, they provide information through intermediaries, such as people or documents. Secondary data is obtained from other existing sources. Researchers can use various sources to obtain secondary data, such as journal articles, government publication sites, books, internal records of a company or organization, and other sources. The researcher will take the secondary data from journals, books, and several article from the previous researchers.

3.6. Research Instruments

The instrument utilized in this study is a vocabulary and grammar test, which includes both pre-test and post-test for immediate and longer measurement. The vocabulary and grammar test consists of multiple-choice questions that students are required to answer. The questions are based on CEFR (Common European Framework of Reference for Languages) level A1 (first level) .The questions are in total 50 questions and each question have about one minute. The category of scores refers to Putri, Lian and Aradea (2020), test scores are separated into several categories. It could be seen in the table below.

Table 3.3 Category of Students' Score

Criteria	Score
Very high	86-100
High	71-85

Medium	56-70
Low	41-55
Very low	≤ 41

3.7. Validity and Reliability Testing

To ensure that research instruments are in accordance with the desired objectives, good research instruments are needed. Research instrument tests based on statistical analysis are known as validity tests and reliability tests.

3.7.1. Validity

Validity is defined as accuracy and thoroughness. It can also be interpreted as validity. In research, data validity is a reference in determining the accuracy of research variables. Validity Test is also referred to as validity testing in research. The main criteria that must be met in quantitative research are valid, reliable and objective. The validity of research data is demonstrated through the validity test score according to what happened and what was reported by the researcher. This research exhibits content validity, construct validity, and item validity. Validity test can be conducted using SPSS or Microsoft Excel.

1. Content Validity

Content validity is the extent to which the statements in the questionnaire or the questions in a test accurately represent the complete set of indicators intended for measurement. The content of the test is based on themes found in the Duolingo application. The researcher asked the expert to validate the content of the researcher's instruments.

2. Criterion Validity

Criterion validity is the accuracy of the measuring instrument used in the sense that the instrument used is in accordance with the criteria of the research instrument that has been widely used. Therefore, criterion validity will compare the values between the pre-test and post-test of the research instrument and will be used as a comparison to see the correlation between the two instruments.

3. Construct Validity

Construct validity is overtaken with a conceptual framework of scientific research topics. The research instrument used has been compiled based on appropriate theoretical concepts and relevant to the field of science to be examined. The validity of the instrument (test) that has high construct validity is always based on expert theories about the concept. Previously, the researcher prepared research instruments to adjust the theoretical framework that had been created. After the instrument was created, researcher consulted with experts in the field. The researcher consulted on the content of the pre-test and post-test. Then the expert will provide feedback, suggestions, opinions and adjustments to the content of the test that has been created.

4. Item Validity

The validity of the questions is used to determine the questions' validity that will be tested. If more than one factor is to be calculated for validity, then a correlation is carried out between each item score and the total score of its factors, which is continued by looking at the correlation between the item score

and the total score of its factors. Then the results of the correlation calculation (correlation coefficient) will be obtained which is the reference for the level of validity of an item in determining the feasibility of a research instrument. The feasibility or otherwise of a research instrument item is measured by looking at the level of significance of the correlation results. In testing the validity of multiple choice questions, it is suitable using biserial correlation. The formula as follows:

$$r_{pbi} = \frac{M_p - M_t}{S_t} \sqrt{\frac{p}{q}}$$

Description:

r_{pbi} : Biserial correlation coefficient

M_p : The average answer score is correct

M_t : Average total score

S_t : Standard deviation of the total score

p : The proportion of respondents who answered correctly

q : The proportion of respondents who answered wrong (1-p)

The determining criteria for the biserial point correlation are:

- a. $0,40 \leq r < 1,00$ = good
- b. $0,30 \leq r < 0,40$ = acceptable and improve
- c. $0,20 \leq r < 0,30$ = improve
- d. $0,00 \leq r < 0,20$ = rejected

3.7.2. Reliability

Reliability testing is carried out to obtain research data measuring tools (instruments) whose validity can be trusted so as to produce data that is truly

relevant to the research objectives. Reliability testing is also used to test the consistency of respondents' answers based on the research instrument. The more reliable a research instrument, the higher its consistency.

This study is use KR-21 (Kuder Richardson-21) as formula to reliability test. The KR-21 formula evaluates reliability by taking into consideration the test mean, standard deviation, and the number of items included. However, it is recognized that the KR-21 formula often underestimates test reliability when items vary in difficulty, which is common in many assessments. Consequently, an adjustment has been proposed to the KR-21 formula to mitigate this underestimation (Douglas-Morris et al., 2021).

The formula of KR-21 as follow:

$$ri = \left(\frac{k}{k-1} \right) \left(1 - \frac{p(k-p)}{k\sigma^2t} \right)$$

Description:

ri : Reliability coefficient

k : The number of question

p : Average score

σ^2t : Total variance

The determining criteria for KR-21 are:

- a. $< 0,20$: very low reliability
- b. $0,20 - 0,40$: low reliability
- c. $0,40 - 0,70$: current reliability
- d. $0,70 - 0,90$: high reliability
- e. $0,90 - 1,00$: very high reliability

Researcher used Cronbach's Alpha method with SPSS 21 to test the question items. An instrument is said to be reliable if the Cronbach's Alpha coefficient value is more than 0.60.

3.8. Data Collection

In this section, the researcher will discuss about pre-test, treatment and post test.

3.8.1. Pre-Test

The pre-test was designed to assess students' ability in vocabulary and grammar sessions. This test was conducted using a paper-based test and was conducted before the treatment was given. The test was multiple-choice questions. The total of questions were 50 questions and each question had about one minute. The theme of the pre-test instrument was pronoun, basic vocab, and basic grammar. The pre-test questions can be found in Appendix II.

3.8.2. Treatment

After carrying out the pre-test, the researchers carried out treatment using Duolingo. The treatment is carried out to find the effectiveness of using Duolingo to enhance vocabulary and grammar retention both for short-term and long-term memory. The treatment is carried out over two meetings. Before doing treatment, firstly students have to install the Duolingo application on their own phone, after that they create an account. When doing first meeting, students can start using Duolingo from the unit one in the chapter one, in the second meeting they continue in unit two. And the third meeting is they continue in unit three chapter one (Appendix I).

3.8.3. Post-Test

The post-test is carried out after the treatment at that time and after three days without treatment. The post-test questions are designed to be similar to the pre-test with the same level of difficulty because the results will be compared with the pre-test. The result of the post-test shows an increase, decrease, or stagnant results. The post-test questions refer to Appendix III (post-test immediate measurement) and Appendix IV (post-test longer measurement).

Below is the table of intervention data collection:

Table 3.4 Intervention of Data Collection

Pre-Test (One meeting)
Treatment + Post-Test Immediate Measurement (Three meetings)
Post-Test Longer Measurement (One meeting)

3.9. Data Analysis

Data analysis is a crucial phase in research, wherein the researcher seeks to derive the anticipated outcomes based on the collected data. The process of data collection is typically carried out through pre- and post-testing. Following this, the data is organized in a systematic manner and categorized to facilitate easier comprehension and the drawing of conclusions. This study utilized quantitative data derived from students' pre- and post-test scores completed by the participants. The analysis of this data was performed using Microsoft Excel software. Statistical techniques were employed to evaluate the effectiveness and application of educational media, specifically the Duolingo application, in promoting vocabulary

and grammar retention. The findings aim to contribute to improving vocabulary and grammar retention among EFL students. The following steps will be taken when analyzing the data in this study.

3.9.1. The Mann Whitney Test

The Mann Whitney hypothesis test is a non-parametric test that measures differences equivalent to the independent T-Test in parametric measurements. Researcher use the Mann Whitney test because the researcher's data which had previously been tested using the Independent T-Test did not pass the normality test requirements, the researcher's data came from two different groups that had homogeneous and inhomogeneous variances so that Mann Whitney testing had to be carried out. This Mann Whitney test does not have significant requirements to perform this test and this test is not limited to the number of samples taken (free). Researcher uses SPSS version 21 for windows to make it easier to do the Mann Whitney test.

The basis for decision making in the Mann Whitney Test is (Sugiyono, 2018):

1. If the Asymp.Sig (2-tailed) value < 0.05 means that there is a significant difference.
2. If the Asymp.Sig (2-tailed) value > 0.05 means that there is no significant difference.

CHAPTER IV

FINDING AND DISCUSSION

This chapter consists of data analysis, hypothesis testing using non-parametric test and discussion.

4.1. Finding

In this section, the researcher will present the findings obtained from the research, including the analysis of data derived from the pre-test and post-test for both the experimental and control groups

4.1.1. Data Analysis of Pre-Test

The pre-test was carried out on November 6th, 2024. During this session, students were instructed to complete a set of 50 multiple-choice questions. The participants, totaling 21 individuals per group, were drawn from both the experimental and control groups. The researcher selected class 7A as the experimental group and class 7B as the control group from the population of seventh-grade students at MTs. Islamiyah Sukopuro.

The pre-test consisted of an identical set of questions for both groups. However, the experimental group was given a treatment through the use of the Duolingo application as a tool for vocabulary and grammar retention, while the control group did not receive any treatment involving the application. The main purpose of the pre-test was to evaluate the students' ability before the implementation of the treatment. The pre-test results for the experimental group are presented in table 4.1 below.

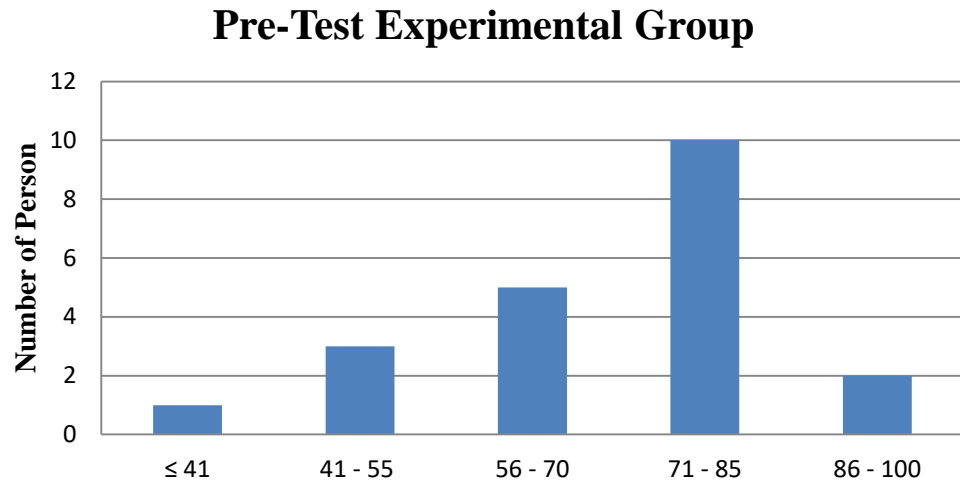
Table 4.1 Students' Score Pre-Test Experimental group

No.	Initial Name	Pre-Test Score
1	AMR	66
2	AAA	78
3	ADO	58
4	AES	56
5	AVF	52
6	DFF	78
7	DMA	54
8	ERDA	92
9	FZN	78
10	FAH	30
11	NRA	82
12	PAS	82
13	RKR	46
14	RAS	62
15	STA	78
16	SR	82
17	SPA	80
18	W	86
19	YAS	72
20	ZNI	84
21	ZAH	66
Σ		1462
Average Score		69.61

From the result of the pre-test contained in the table 4.1 seen from the result of class 7A in MTs. Islamiyah Sukopuro as an experimental group, it can be found the lowest score of the students' pre-test is 30 and the highest score is 92. To analyze descriptive data from the result of the pre-test in the experimental group, researcher

uses Microsoft Excel. The distribution of students' score can be seen in histogram chart below:

Diagram 4.1 Pre-test Experimental Group



The histogram above describes the distribution of scores among the 21 students in the experimental group. Specifically, one student obtained a score below 41, three students obtained a score between 41 and 55, five students obtained a score in the range of 56 to 70, ten students obtained a score between 71 and 85, and two students obtained a score between 86 and 100. Based on this distribution, it can be concluded that 12 students performed well on the pre-test, while 9 students did not. The descriptive statistics obtained from the experimental group's pre-test scores are presented as follows

Table 4.2 Descriptive statistic of Pre-test Experimental Group

<i>Pre-test Experimental Group</i>	
Mean	69.61905
Standard Error	3.421554
Median	78
Mode	78
Standard Deviation	15.67953

Sample Variance	245.8476
Kurtosis	0.352073
Skewness	-0.8819
Range	62
Minimum	30
Maximum	92
Sum	1462
Count	21

Table 4.2 presents the statistical summary of the pre-test scores for the experimental group, indicating a mean score is 69.61, a median score is 78, and a standard deviation is 15.67. Additionally, the table reports that the total number of students in class 7A is 21, with scores ranging from a minimum of 30 to a maximum of 92. The relatively smaller standard deviation compared to the mean suggests that the pre-test data for the experimental group demonstrates consistency and reliability. The pre-test results for the control group are provided in Table 4.3 below.

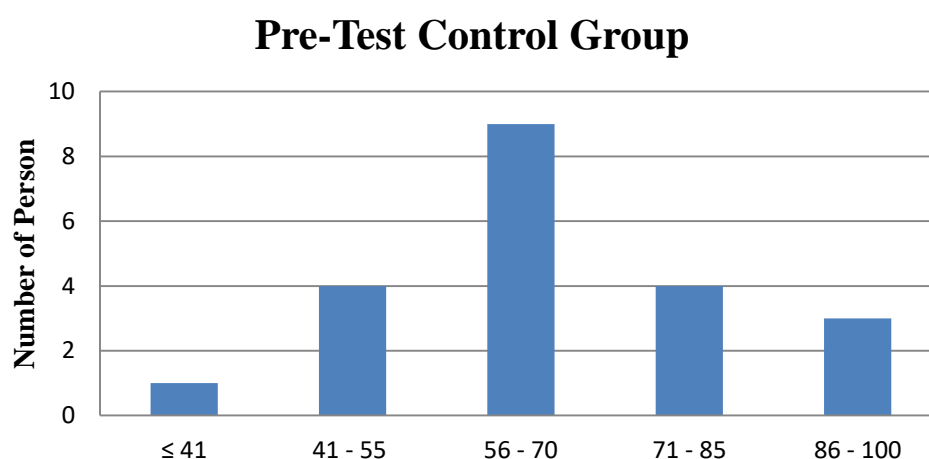
Table 4.3 Students' Score Pre-Test Control Group

No.	Initial Name	Pre-Test Score
1	AK	68
2	CNUK	56
3	ERM	96
4	FAR	78
5	KRS	58
6	KPF	96
7	KRAA	40
8	MAH	60
9	MYAA	72
10	MFY	94
11	MES	52
12	MNA	58
13	MDAU	42
14	MIIM	78

15	MRA	64
16	MIY	54
17	RPM	70
18	RES	48
19	RAF	60
20	SEA	60
21	TSKA	84
Σ		1388
Average Score		66.095

The pre-test results outlined in Table 4.3 correspond to class 7B at MTs. Islamiyah Sukopuro, which functioned as the control group. Within this group, the lowest recorded score was 40, while the highest score reached 96. To examine the descriptive statistics of the pre-test results, the researcher employed Microsoft Excel, following the same analytical approach as used for the experimental group. The distribution of student scores is visually represented in the histogram chart below.

Diagram 4.2 Pre-Test Control Group



Based on the histogram graph above only one student that have score under 41, in the range 41-55 there are 4 students, there are 9 students in the range score

56-70, in the range score 71-85 there are 4 students, and the last range score 86-100 there are 3 students. The distribution of scores is presented in ascending order, along with the frequency of students reaching each score range. Based on the histogram illustrating the pre-test results of 21 students in the control group, it can be concluded that 7 students performed effectively, while 14 students did not. The descriptive statistics obtained from the calculation of the pre-test scores for the control group are as follows :

Table 4.4. Descriptive Statistic of Pre-Test Control Group

<i>Pre-Test Control Group</i>	
Mean	66.09524
Standard Error	3.621303
Median	60
Mode	60
Standard Deviation	16.59489
Sample Variance	275.3905
Kurtosis	-0.53211
Skewness	0.4785
Range	56
Minimum	40
Maximum	96
Sum	1388
Count	21

Table 4.4 presents the statistical analysis of the pre-test results for the control group, which shows a mean score is 66.095, a median score is 60, and a standard deviation is 16.59. The table also shows that the total number of students in class 7B is 21, with pre-test scores ranging from a minimum of 40 to a maximum of 96. In addition, the standard deviation is smaller than the mean value, which indicates that the pre-test data for the control group showed good quality and consistency

After obtaining the pre-test scores for both groups, the researcher implemented the treatment for the experimental group using the Duolingo application. This treatment consisted of three treatment sessions, followed by an immediate post-test to assess students' short-term memory retention. After the implementation of the treatment and the immediate post-test measurement, the researcher conducted a post-test longer measurement to assess students' long-term memory retention. This subsequent evaluation allowed a comparison of the difference in scores before and after the treatment, which provided insight into the effectiveness of the treatment over time.

4.1.2. Data Analysis of Post-Test Immediate Measurement

The post-test immediate measurement activity carried out on 11, 13 and 23 November 2024. The test is done after the treatment of Duolingo Application on the same day as treatment activities. The post-test immediate measurement was carried out in three times. In this activity, students were assisted to answer some questions to measure their short-term memory about vocabulary and grammar related in the Duolingo. The questions are the same with the test on the pre-test. The result of the post-test immediate measurement experimental group could be seen as follows:

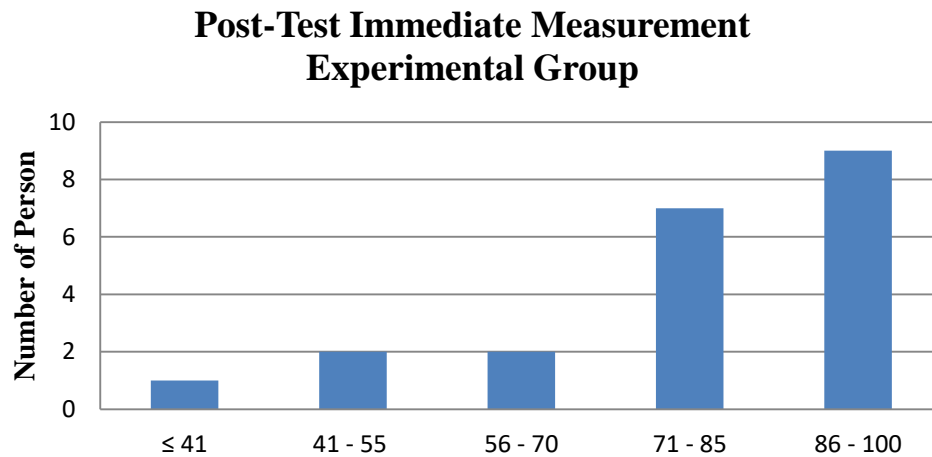
Table 4.5 Students' Score Post-Test Immediate Measurement Experimental Group

No.	Initial Name	Post-Test Score			
		1	2	3	Average
1	AMR	92	86	92	90
2	AAA	44	34	28	35.3
3	ADO	80	80	86	82
4	AES	80	72	34	62
5	AVF	44	50	56	50

6	DFF	86	62	90	79.3
7	DMA	82	86	86	84.6
8	ERDA	92	92	90	91.3
9	FZN	96	100	96	97.3
10	FAH	50	54	62	55.3
11	NRA	80	94	84	86
12	PAS	86	80	86	84
13	RKR	36	70	62	56
14	RAS	76	86	90	84
15	STA	96	98	100	98
16	SR	88	94	98	93.3
17	SPA	78	86	86	83.3
18	W	100	96	100	98.6
19	YAS	78	90	82	83.3
20	ZNI	90	88	84	87.3
21	ZAH	88	88	90	88.6
Σ					1670
Average Score					79.52

The results of the immediate post-test measurement, as presented in Table 4.5, correspond to class 7A at MTs. Islamiyah Sukopuro, which served as the experimental group. The analysis indicates that, after averaging each student's score, the lowest recorded score is 35.3, while the highest reached 98.6. The distribution of student scores is visually represented in the histogram chart below.

Diagram 4.3 Post-Test Immediate Measurement Experimental Group



Based on the histogram above, the distribution of scores in the experimental group is as follows: one student scored below 41, two students scored between 41 and 55, two students scored between 56 and 70, seven students scored between 71 and 85, and 9 students scored between 86 and 100. The scores are presented in ascending order. From this distribution, it can be concluded that, out of 21 students in the experimental group, 16 students' demonstrated effective performance in the post-test immediate, while 5 students were ineffective. The descriptive statistics derived from the calculation of post-test immediate measurement scores for the experimental group are provided below :

Table 4.6 Descriptive Statistic of Post-Test Immediate Measurement Experimental Group

<i>Post-Test Immediate Measurement Experimental Group</i>	
Mean	79.52381
Standard Error	3.786957
Median	84
Mode	84
Standard Deviation	17.35402
Sample Variance	301.1619

Kurtosis	0.773199
Skewness	-1.25015
Range	63.33333
Minimum	35.33333
Maximum	98.66667
Sum	1670
Count	21

Table 4.6 presents the mean value of the post-test immediate measurement for the experimental group, which shows a mean score is 79.52, a median score is 84, and a standard deviation is 17.35. The data also shows that the total number of students in class 7A is 21 students, with scores ranging from a minimum of 35.3 to a maximum of 98.6. As the standard deviation is smaller than the mean, it can be concluded that the post-test immediate measurement data for experimental group shows good quality and consistency. The post-test immediate measurement results for the control group are presented in Table 4.7 below.

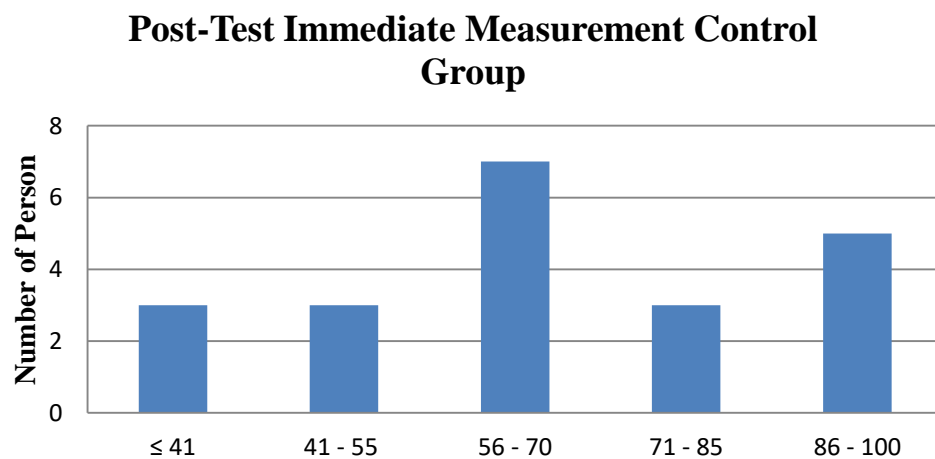
Table 4.7 Students' Score Post-Test Immediate Measurement Control Group

No.	Initial Name	Post-Test Score			
		1	2	3	Average
1	AK	84	68	52	68
2	CNUK	60	64	58	60.6
3	ERM	92	92	90	91.3
4	FAR	86	86	88	86.6
5	KRS	88	86	84	86
6	KPF	92	94	90	92
7	KRAA	68	58	74	66.6
8	MAH	68	90	86	81.3
9	MYAA	46	60	62	56
10	MFY	90	86	80	85.3
11	MES	42	28	44	38
12	MNA	30	38	30	32.6

13	MDAU	36	58	68	54
14	MIIM	80	80	76	78.6
15	MRA	38	60	72	56.6
16	MIY	60	28	20	36
17	RPM	64	66	60	63.3
18	RES	44	30	78	50.6
19	RAF	54	58	54	55.3
20	SEA	88	62	58	69.3
21	TSKA	86	90	92	89.3
Σ					1398
Average Score					66.57

From the result of the post-test immediate measurement in table 4.7 was from the results of class 7B MTs. Islamiyah Sukopuro as a control group, it can be found that the lowest score for post-test immediate measurement after averaging each student's score is 32.6 and the highest is 92. The distribution of students score can be seen in the histogram chart below:

Diagram 4.4 Post-Test Immediate Measurement Control Group



Based on the histogram above, the distribution of scores in the control group are as follows: 3 students scored under 41, 3 students scored between 41 and 55, 7

students scored between 56 and 70, 3 students scored between 71 and 85, and 5 students scored between 86 and 100. The scores are arranged in ascending order. From this distribution, it can be concluded that, of the 21 students in the control group, 8 students performed effectively in post-test immediate measurement, while 13 students did not. The descriptive statistics obtained from the calculation of the post-test immediate measurement scores for the control group are presented as follows:

Table 4.8 Descriptive Statistic of Post-Test Immediate Measurement Control Group

<i>Post-Test Immediate Measuremet Control Group</i>	
Mean	66.57143
Standard Error	4.076072
Median	66.66667
Mode	66.66667
Standard Deviation	18.67891
Sample Variance	348.9016
Kurtosis	-0.98386
Skewness	-0.25619
Range	59.33333
Minimum	32.66667
Maximum	92
Sum	1398
Count	21

Table 4.8 presents the statistical analysis of the post-test immediate measurement for the control group, which shows a mean score is 66.57, a median score is 66.6, and a standard deviation is 18.67. The data further shows that the total number of students in class 7B was 21, with scores ranging from a minimum of 32.6 to a maximum of 92. As the standard deviation is smaller than the mean, it can

be concluded that the post-test immediate measurement data for the control group shows good quality and consistency.

4.1.3. Data Analysis of Post-Test Longer Measurement

The post-test immediate measurement was conducted on 26th November 2024. The test is done after the treatment of Duolingo Application three days after treatment activities. This assessment was administered following three treatment sessions using the Duolingo application. During this activity, students were guided in answering a set of questions designed to evaluate their short-term memory and retention of vocabulary and grammar learned through the Duolingo application. The questions are the same with the test on the pre-test and post-test immediate measurement. The result of the post-test longer measurement experimental group could be seen as follows:

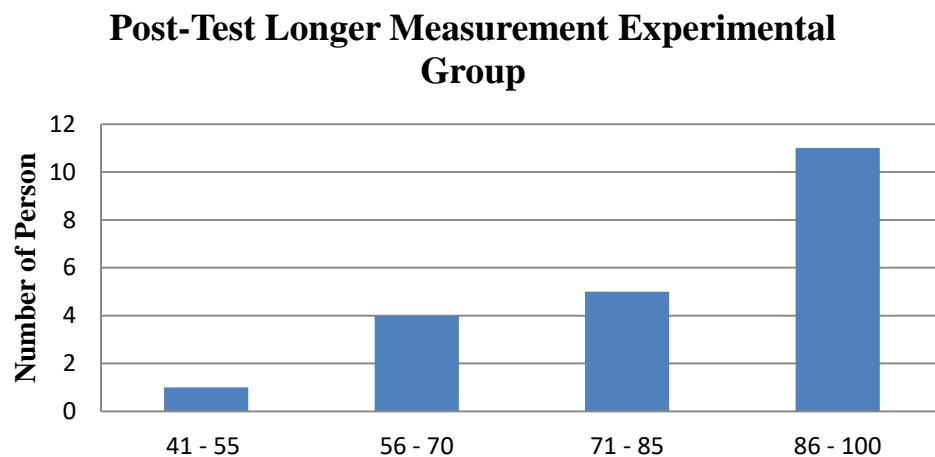
*Table 4.9 Students' Score Post-Test Longer Measurement
Experimental Group*

No.	Initial Name	Post-Test Score
1	AMR	86
2	AAA	54
3	ADO	84
4	AES	68
5	AVF	56
6	DFF	100
7	DMA	80
8	ERDA	92
9	FZN	88
10	FAH	64
11	NRA	84
12	PAS	88
13	RKR	68
14	RAS	84

15	STA	100
16	SR	90
17	SPA	88
18	W	98
19	YAS	94
20	ZNI	78
21	ZAH	90
Σ		1734
Average Score		82.57

From the result of the post-test longer measurement in table 4.9 was from the results of class 7A MTs. Islamiyah Sukopuro as an experimental group, it can be found that the lowest score for post-test longer measurement is 54 and the highest is 100. The distribution of students score can be seen in the histogram chart below:

Diagram 4.5 Post –Test Longer Measurement Experimental Group



Based on the histogram above, the distribution of scores in the experimental group are as follows: one student scored between 41 and 55, 4 students scored between 56 and 70, five students scored between 71 and 85, and 10 students scored between 86 and 100. The scores are arranged in ascending order. From this distribution, it can be concluded that, out of 21 students in the experimental group,

16 students performed effectively in the post-test longer measurement, while 5 students did not. The descriptive statistics derived from the calculation of post-test longer measurement scores for the experimental group are presented as follows:

*Table 4.10 Descriptive Statistic of Post-Test Longer Measurement
Experimental Group*

<i>Post-Test Longer Measurement Experimental Group</i>	
Mean	82.57143
Standard Error	2.928165
Median	86
Mode	84
Standard Deviation	13.41854
Sample Variance	180.0571
Kurtosis	-0.07228
Skewness	-0.84285
Range	46
Minimum	54
Maximum	100
Sum	1734
Count	21

Table 4.10 presents the mean value of the post-test longer measurement for the experimental group, indicating a mean score is 82.57, a median score is 86, and a standard deviation is 13.41. The data further show that the total number of students in class 7A is 21 students, with scores ranging from a minimum of 54 to a maximum of 100. As the standard deviation is smaller than the mean, it can be concluded that the delayed post-test measurement data for the experimental group demonstrate

good quality and consistency. The results of the post-test longer measurement for the control group are presented as follows.

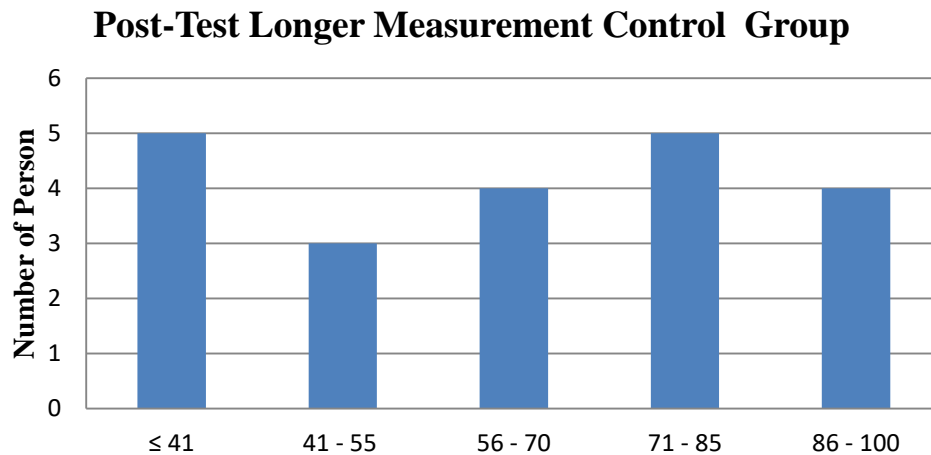
Table 4.11 Students' Score Post-Test Longer Measurement Control Group

No.	Initial Name	Post-Test Score
1	AK	70
2	CNUK	68
3	ERM	92
4	FAR	84
5	KRS	88
6	KPF	94
7	KRAA	70
8	MAH	84
9	MYAA	80
10	MFY	88
11	MES	38
12	MNA	36
13	MDAU	40
14	MIIM	84
15	MRA	34
16	MIY	38
17	RPM	54
18	RES	52
19	RAF	70
20	SEA	54
21	TSKA	84
Σ		1402
Average Score		66.76

The post-test longer measurement results, as presented in Table 4.11, correspond to class 7B at MTs. Islamiyah Sukopuro, which is the control group. The analysis results show that the lowest scored in this group was 34, while the

highest score reached 94. The distribution of student scores is visually represented in the histogram graph below.

Diagram 4.6 Post-Test Longer Measurement Control Group



Based on the histogram above, the distribution of scores in the control group are as follows: 5 students scored under 41, 3 students scored between 41 and 55, 4 students scored between 56 and 70, 5 students scored between 71 and 85, and 4 students scored between 86 and 100. From this distribution, it can be concluded that, of the 21 students in the control group, 9 students performed effectively in the post-test longer measurement, while 12 students did not. The descriptive statistics obtained from the calculation of the post-test longer measurement scores for the control group are presented as follows.

Table 4.12 Descriptive Statistic of Post-Test Longer Measurement Control Group

<i>Post-Test Longer Measurement Control Group</i>	
Mean	66.7619
Standard Error	4.528168
Median	70
Mode	84
Standard Deviation	20.75067

Sample Variance	430.5905
Kurtosis	-1.40422
Skewness	-0.37138
Range	60
Minimum	34
Maximum	94
Sum	1402
Count	21

Table 4.12 presents the mean value of the post-test longer measurement for the control group, indicating a mean score is 66.76, a median score is 70, and a standard deviation is 20.75. The data further show that the total number of students in class 7A is 21 students, with scores ranging from a minimum of 34 to a maximum of 94. As the standard deviation is smaller than the mean, it can be concluded that the post-test longer measurement data for the control group demonstrate good quality and consistency.

4.1.4. Students' Achievement in Vocabulary and Grammar Retention

Before and After Using Duolingo Application for Teenager Students

After the pre-test, treatment using the Duolingo application and post-tests were carried out, the researcher obtained the results of the pre-test and post-test immediate and longer measurement scores in each class. Then it can be seen that the mean of student score increases after learning using the Duolingo application. See from the table below:

*Table 4.13 Result of Pre-Test and Post-Test Immediate Measurement
Experimental Group*

No.	Initial Name	Difference	
		Pre-test	Average Post-Test Immediate measurement

1.	AMR	66	90
2.	AAA	78	35.3
3.	ADO	58	82
4.	AES	56	62
5.	AVF	52	50
6.	DFF	78	79.3
7.	DMA	54	84.6
8.	ERDA	92	91.3
9.	FZN	78	97.3
10.	FAH	30	55.3
11.	NRA	82	86
12.	PAS	82	84
13.	RKR	46	56
14.	RAS	62	84
15.	STA	78	98
16.	SR	82	93.3
17.	SPA	80	83.3
18.	W	86	98.6
19.	YAS	72	83.3
20.	ZNI	84	87.3
21.	ZAH	66	88.6
Average		69.61	79.52

The table comparing the pre-test and post-test immediate measurement scores for the experimental group shows a marked difference in student performance. This is evidenced by the increase in mean scores, with the post-test immediate measurement resulted in a mean score is 79.52. This finding shows that, among the 21 students in the experimental group, all students demonstrated effective learning outcomes after treatment with the Duolingo application.

Table 4.14 Result of Pre-Test and Post-Test Longer Measurement Experimental Group

No.	Initial Name	Difference	
		Pre-test	Post-Test Longer measurement
1.	AMR	66	86
2.	AAA	78	54
3.	ADO	58	84
4.	AES	56	68
5.	AVF	52	56
6.	DFF	78	100
7.	DMA	54	80
8.	ERDA	92	92
9.	FZN	78	88
10.	FAH	30	64
11.	NRA	82	84
12.	PAS	82	88
13.	RKR	46	68
14.	RAS	62	84
15.	STA	78	100
16.	SR	82	90
17.	SPA	80	88
18.	W	86	98
19.	YAS	72	94
20.	ZNI	84	78
21.	ZAH	66	90
Average		69.61	82.57

The table comparing the pre-test and post-test immediate measurement scores for the experimental group shows a marked difference in student performance. This is evidenced by the increase in mean scores, with the post-test immediate measurement resulted in a mean score is 82.57. This finding shows that,

among the 21 students in the experimental group, all students demonstrated effective learning outcomes after treatment with the Duolingo application.

Table 4.15 Result of Pre-Test and Post-Test Immediate Measurement Control

Group

No.	Initial Name	Difference	
		Pre-test	Average Post-Test Immediate measurement
1.	AK	68	68
2.	CNUK	56	60.6
3.	ERM	96	91.3
4.	FAR	78	86.6
5.	KRS	58	86
6.	KPF	96	92
7.	KRAA	40	66.6
8.	MAH	60	81.3
9.	MYAA	72	56
10.	MFY	94	85.3
11.	MES	52	38
12.	MNA	58	32.6
13.	MDAU	42	54
14.	MIIM	78	78.6
15.	MRA	64	56.6
16.	MIY	54	36
17.	RPM	70	63.3
18.	RES	48	50.6
19.	RAF	60	55.3
20.	SEA	60	69.3
21.	TSKA	84	89.3
Average		66.095	66.57

The table comparing the pre-test and post-test immediate measurement for the control group shows a slight improvement in student performance. The mean

score of the pre-test was 66.095, while the mean score of the immediate post-test increased to 66.57. Although the increase was small, it indicated a positive change in student performance. Therefore, it can be concluded that the mean score of the immediate post-test was higher than the pre-test score, indicating some degree of progress in vocabulary and grammar retention, although not as significant as in the experimental group.

Table 4.16 Result of Pre-Test and Post-Test Longer Measurement Control Group

No.	Initial Name	Difference	
		Pre-test	Post-Test Longer measurement
1.	AK	68	70
2.	CNUK	56	68
3.	ERM	96	92
4.	FAR	78	84
5.	KRS	58	88
6.	KPF	96	94
7.	KRAA	40	70
8.	MAH	60	84
9.	MYAA	72	80
10.	MFY	94	88
11.	MES	52	38
12.	MNA	58	36
13.	MDAU	42	40
14.	MIIM	78	84
15.	MRA	64	34
16.	MIY	54	38
17.	RPM	70	54
18.	RES	48	52
19.	RAF	60	70
20.	SEA	60	54
21.	TSKA	84	84
Average		66.095	66.76

The table comparing the pre-test and post-test immediate measurement for the control group shows a slight improvement in student performance. The mean score of the pre-test was 66.095, while the mean score of the immediate post-test increased to 66.76. Although the increase was small, it indicated a positive change in student performance. Therefore, it can be concluded that the mean score of the post-test longer was higher than the pre-test score, indicating some degree of progress in vocabulary and grammar retention, although not as significant as in the experimental group.

4.1.5. Result of Validity Testing

Testing the validity of the items was carried out construct and content validity with the lecturer. Researcher tested 150 questions to grade 7 students who were not included in the experimental and control groups. researcher tested 150 question on part of 7A and 7B students and the trial was complete in 1 meeting with a time about 90 minutes. This validity test was conducted on November 4th, 2024.

In this study, researcher used SPSS 21 to test the validity. The result of the calculation were compared with r table, if $r \text{ count} > r \text{ table}$, then the question items are valid. The result could be seen as follow:

Table 4.17 Result of Validity Test

Item Number	r-table	r-item	Result
1	0.4132	0.607	Valid
2	0.4132	0.154	Invalid
3	0.4132	0.447	Valid
4	0.4132	0.447	Valid
5	0.4132	0.461	Valid
6	0.4132	0.101	Invalid
7	0.4132	0.73	Valid
8	0.4132	0.156	Invalid
9	0.4132	0.716	Valid

10	0.4132	0.38	Invalid
11	0.4132	0.716	Valid
12	0.4132	0.233	Invalid
13	0.4132	0.03	Invalid
14	0.4132	0.585	Valid
15	0.4132	0.456	Valid
16	0.4132	0.304	Invalid
17	0.4132	0.111	Invalid
18	0.4132	0.429	Valid
19	0.4132	0.336	Invalid
20	0.4132	0.315	Invalid
21	0.4132	0.716	Valid
22	0.4132	0.358	Invalid
23	0.4132	0.716	Valid
24	0.4132	0.399	Invalid
25	0.4132	0.022	Invalid
26	0.4132	0.62	Valid
27	0.4132	0.415	Valid
28	0.4132	0.205	Invalid
29	0.4132	0.457	Valid
30	0.4132	0.387	Invalid
31	0.4132	0.546	Valid
32	0.4132	0.316	Invalid
33	0.4132	0.266	Invalid
34	0.4132	0.456	Valid
35	0.4132	0.218	Invalid
36	0.4132	0.239	Invalid
37	0.4132	0.674	Valid
38	0.4132	0.161	Invalid
39	0.4132	0.055	Invalid
40	0.4132	0.541	Valid
41	0.4132	0.574	Valid
42	0.4132	0.122	Invalid
43	0.4132	0.178	Invalid
44	0.4132	0.136	Invalid
45	0.4132	0.166	Invalid
46	0.4132	0.331	Invalid
47	0.4132	0.206	Invalid
48	0.4132	0.199	Invalid
49	0.4132	0.232	Invalid
50	0.4132	0.396	Invalid

51	0.4132	0.424	Valid
52	0.4132	0.541	Valid
53	0.4132	0.716	Valid
54	0.4132	0.276	Invalid
55	0.4132	0.764	Valid
56	0.4132	0.351	Invalid
57	0.4132	0.578	Valid
58	0.4132	0.235	Invalid
59	0.4132	0.662	Valid
60	0.4132	0.556	Valid
61	0.4132	0.434	Valid
62	0.4132	0.413	Invalid
63	0.4132	0.678	Valid
64	0.4132	0.361	Invalid
65	0.4132	0.781	Valid
66	0.4132	0.634	Valid
67	0.4132	0.336	Invalid
68	0.4132	0.238	Invalid
69	0.4132	0.719	Valid
70	0.4132	0.532	Valid
71	0.4132	0.801	Valid
72	0.4132	0.45	Valid
73	0.4132	0.612	Valid
74	0.4132	0.891	Valid
75	0.4132	0.75	Valid
76	0.4132	0.522	Valid
77	0.4132	0.75	Valid
78	0.4132	0.75	Valid
79	0.4132	0.778	Valid
80	0.4132	0.553	Valid
81	0.4132	0.619	Valid
82	0.4132	0.678	Valid
83	0.4132	0.837	Valid
84	0.4132	0.891	Valid
85	0.4132	0.333	Invalid
86	0.4132	0.552	Valid
87	0.4132	0.225	Invalid
88	0.4132	0.078	Invalid
89	0.4132	0.598	Valid
90	0.4132	0.684	Valid
91	0.4132	0.287	Invalid

92	0.4132	0.576	Valid
93	0.4132	0.249	Invalid
94	0.4132	0.501	Valid
95	0.4132	0.527	Valid
96	0.4132	0.579	Valid
97	0.4132	0.551	Valid
98	0.4132	0.585	Valid
99	0.4132	0.523	Valid
100	0.4132	0.563	Valid
101	0.4132	0.399	Invalid
102	0.4132	0.399	Invalid
103	0.4132	0.246	Invalid
104	0.4132	0.48	Valid
105	0.4132	0.47	Valid
106	0.4132	0.708	Valid
107	0.4132	0.764	Valid
108	0.4132	0.445	Valid
109	0.4132	0.445	Valid
110	0.4132	0.396	Invalid
111	0.4132	0.466	Valid
112	0.4132	0.644	Valid
113	0.4132	0.781	Valid
114	0.4132	0.529	Valid
115	0.4132	0.626	Valid
116	0.4132	0.484	Valid
117	0.4132	0.409	Invalid
118	0.4132	0.147	Invalid
119	0.4132	0.456	Valid
120	0.4132	0.728	Valid
121	0.4132	0.475	Valid
122	0.4132	0.47	Valid
123	0.4132	0.757	Valid
124	0.4132	0.644	Valid
125	0.4132	0.412	Invalid
126	0.4132	0.504	Valid
127	0.4132	0.608	Valid
128	0.4132	0.781	Valid
129	0.4132	0.631	Valid
130	0.4132	0.048	Invalid
131	0.4132	0.372	Invalid
132	0.4132	0.36	Invalid

133	0.4132	0.767	Valid
134	0.4132	0.881	Valid
135	0.4132	0.215	Invalid
136	0.4132	0.127	Invalid
137	0.4132	0.534	Valid
138	0.4132	0.308	Invalid
139	0.4132	0.29	Invalid
140	0.4132	0.142	Invalid
141	0.4132	0.333	Invalid
142	0.4132	0.663	Valid
143	0.4132	0.74	Valid
144	0.4132	0.29	Invalid
145	0.4132	0.587	Valid
146	0.4132	0.394	Invalid
147	0.4132	0.04	Invalid
148	0.4132	0.12	Invalid
149	0.4132	0.185	Invalid
150	0.4132	0.395	Invalid

Based on the table 4.17, there were 86 questions valid and 64 questions were invalid. the questions that invalid after tested using SPSS 21 were question number 2, 6, 8, 10, 12, 13, 16, 17, 19, 20, 22, 24, 25, 28, 30 , 32, 33, 35, 36, 38, 39, 42, 43, 44, 45,46, 47, 48, 49, 50, 54, 56, 58, 62, 64, 67, 68, 85, 87, 88, 91, 93, 101, 102, 103, 110, 117, 118, 125, 130, 131, 132, 135, 136, 138, 139, 140, 141, 144, 146, 147, 148, 149, and 150. Questions that declared valid after being tested using SPSS 21, it was found that questions included as valid item were question number 1, 3, 4, 5, 7, 9, 11, 14, 15, 18, 21, 23, 26, 27, 29, 31, 34, 37, 40, 41, 51, 52, 53, 55, 57, 59, 60, 61, 63, 65, 66, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 92, 94, 95, 96, 97, 98, 99, 100, 104, 105, 106, 107, 108, 109, 111, 112, 113, 114, 115, 116, 119, 120, 121, 122, 123, 124, 126, 127, 128, 129, 133, 134, 137, 142, 143, and 145.

4.1.6. Result of Reliability Testing

The reliability test was conducted subsequent to the validation of each item. Reliability tests are also used to assess the consistency of measurements, ensuring that the same object results identical data. In this study, the researcher retrieved reliability tests on the items using SPSS, and the results were as follows:

Table 4.18 Reliability Statistic

Cronbach's Alpha	N of Items
.972	150

From the table above, it can be seen that N of items (question items) are 150 items with the Cronbach's Alpha value 0.972. Despite that the Cronbach's Alpha value $0.972 > 0.60$, it can be concluded that question items were reliable.

4.1.7. Result of Mann Whitney Test

The Mann Whitney hypothesis test is a non-parametric test that measures differences equivalent to the independent T-Test in parametric measurements. The Mann Whitney test does not have significant requirements to perform this test and this test is not limited to the number of samples taken (free).

The basis in the Mann Whitney Test can be concluded as follow:

1. If the Asymp.Sig (2-tailed) value < 0.05 means that there is a significant difference. Hypothesis (H_a) is accepted
2. If the Asymp.Sig (2-tailed) value > 0.05 means that there is no significant difference. Hypothesis (H_a) is rejected

The result of the Mann Whitney test for immediate measurement test of experimental and control group is in the table below:

Table 4.19 Mann Whitney Testing for Immediate Measurement

Ranks				
	Class	N	Mean Rank	Sum of Ranks
Learning Outcomes	Experimental IM	21	23.14	486.00
	Control IM	21	19.86	417.00
	Total	42		

Test Statistics ^a	
	Hasil Belajar
Mann-Whitney U	186.000
Wilcoxon W	417.000
Z	-.868
Asymp. Sig. (2-tailed)	.385
a. Grouping Variable: Class	

From the tables above, it was recognized that the value of Asymp. Sig (2 tailed) is 0.385 and greater than > probability value 0.05. Therefore, it can be concluded that “Ha is rejected”.

The result of the Mann Whitney test for longer measurement test of experimental and control group is in the table below:

Table 4.20 Mann Whitney Testing for Longer Measurement

Ranks				
	Class	N	Mean Rank	Sum of Ranks
Learning Outcomes	Experimental LM	21	27.31	573.50
	Control LM	21	15.69	329.50
	Total	42		

Test Statistics ^a	
	Hasil Belajar
Mann-Whitney U	98.500
Wilcoxon W	329.500
Z	-3.075
Asymp. Sig. (2-tailed)	.002
a. Grouping Variable: Class	

From the tables above, it was recognized that the value of Asymp. Sig (2 tailed) is 0.002 and smaller than $<$ probability value 0.05. Therefore, it can be concluded that “ H_a is accepted”.

It can be concluded that the result of Mann Whitney test for immediate measurement values is not effective or there is no significant difference because the value of Asymp. Sig (2 tailed) is greater than 0.05. Beside that, the result for longer measurement value is effective or there is significant difference because the value of Asymp. Sig (2 tailed) is smaller than 0.05.

4.2. Discussion

This research was conducted at MTs. Islamiyah Sukopuro using a quantitative quasi-experimental design. The researcher selected two separate groups as samples: class 7A, which acted as the experimental group, and class 7B, which acted as the control group. Each group consisted of 21 students. These groups were selected to assess the effectiveness of the Duolingo app in improving vocabulary and grammar retention among teenage students. The Duolingo app was only applied to the experimental group, while the control group did not receive any treatment. This design allowed the researcher to compare the differences between the two groups.

Before conducting the research activities in both the experimental and control groups, the researcher conducted a trial test of the question items on parts of classes 7A and 7B that were not included in the experimental and control groups. This was done to assess the validity and reliability of the questions to be used in the pre-test and post-test. The validity test ensured that the instruments were accurate and appropriate for the study, while the reliability test assessed the consistency of the instruments, ensuring that they would produce similar results when applied at

different times.(Sürücü & Maslakçı, 2020). This test consisted of 150 questions with an estimated completion time of 90 minutes. The researcher then analyzed students' answers by conducting validity and reliability tests using SPSS 21. The validity test results showed that 64 questions were invalid, while 86 questions were considered valid. The reliability test measured using Cronbach's Alpha resulted in a value of 0.972. Since the Cronbach's Alpha value is more than 0.60, it can be concluded that the question items are reliable.

The pre-test was provided before the treatment, while the post-test was conducted afterward. In order to evaluate the difference in pre-test and post-test scores for each group, data analysis was conducted using Microsoft Excel, which emphasized the pre-test and post-test scores along with descriptive statistics.

The pre-test was given to determine students' initial ability before being given treatment, for which students were asked to answer questions according to their abilities. What was done next was the provision of treatment in the experimental class. For this case, the researcher conducted three treatments in the classroom, with one treatment adjusting the lesson hour, which is 40 minutes.

In the first treatment, the researcher opened the learning process by saying greetings, introducing herself, and providing motivation to students. After that, students were asked to register themselves and create an account on the duolingo application which before the pre-test was conducted, students had been asked by the teacher to download the duolingo application first at home.

The researcher explained the rules on how to use Duolingo. And after students understood the rules provided, students were asked to start playing games in Duolingo. In the first treatment, students were asked to do chapter 1 unit 1. On this

opportunity, all students were enthusiastic to participate in this game. In applying Duolingo in class, not all students are mastering in the vocabulary and grammar fields, but in this game, students are asked to pay more attention and understand the various vocabulary and grammar with the use of Duolingo. After the first treatment was completed, the researcher conducted the first immediate measurement post test. Students work on multiple choice questions with an estimated time of 40 minutes. The questions given were taken from the questions in the Duolingo application.

In the next treatments, students were asked to do the questions in chapter 1 unit 2 with a duration of 40 minutes. However, in the second treatment, the class conditions became crowded and the researcher had a little difficulty conditioning the class. At the same time as the second treatment, researchers also conducted a second post-test in which the questions were the same as the first post test. At the end of the treatment, the researcher asked students to work on the questions in chapter 1 unit 3.

In the control class, the learning used the tradition method. The researcher wrote vocabulary that matched with duolingo with basic grammar inserted. The control class had a quiet condition and students paid attention to the instructions given by the researcher. Within 3 days after the treatment and the last immediate measurement post-test, the researcher conducted a longer measurement post-test to measure students' long memory. The questions given amounted to 50 questions with the same theme but different types of questions.

In its application, Duolingo motivates students to open and play the dulingo application. Because Duolingo has a fun learning game concept. Students can compete with their friends on leaderboards by earning points, which will give them

rewards in the form of bars when they complete certain exercises. In addition, students' scores improved significantly between the pre and post test. Not only that, students also learned a lot of new vocabulary and can organize words into simple sentences according to Grammar.

After the researcher collected the data, the researcher processed the data and then analyzed the data. When researcher did the data analysis using parametric test included normality test and homogeneity test, the data was not distributed when did normality test and the data was not homogeneous when did homogeneity test. If the data was not distributed normally and not homogeneous, so the results of data analysis was considered not qualified or not credible. Therefore, this data used non-parametric test as alternative for data analysis. The researcher was using Mann Whitney test because there was two independent groups that was analyzed. In the Mann Whitney test analysis, the goal was to determine the average difference data that has been obtained. This test used SPSS 21 to analyzed the data. The result of Mann Whitney test of post-test immediate measurement from experimental and control groups was 0.385, and the result of Mann Whitney test of post-test longer measurement from experimental and control groups was 0.002. The criteria of Mann Whitney test is if Asymp. Sig (2 tailed) value < 0.05 means H_0 is rejected and H_a is accepted, if Asymp. Sig (2 tailed) value > 0.05 means H_a is rejected and H_0 is accepted. So it can be concluded that there is no significant change in students' short-term memory and interpreted as Duolingo Application is not effective for teenager students in short-term memory. Furthermore, there is significant difference in students' long-term memory, so it can interpreted as Duolingo Application is effective for teenager students in long-term memory.

This findings related to the theory about short-term and long-term memory. The short-term memory has limited capacity, a brief duration, and functions as a temporary buffer for storing information. the capacity is inferred by continuing to place information into the memory store until some of it is "lost" or cannot be recalled accurately. It can be concluded that short-term memory cannot hold a lot of information because of the small capacity in the short-term memory that might be gone and overlapped easily. This is contrary with long-term memory. Long-term memory stores boundless information for an infinite period of time. Information can relate to individual occasions, the temporal and spatial relationships between those occasions, and real-world substances and their implication, such as symbols, words, and concept. Additionally, better long-term memory performance is associated with the accumulation of stored knowledge over time.

The results of this study can be compared with the research conducted by Aidinlou and Moradinejad (2016) on short-term and long-term retention of vocabulary using authentic subtitle videos in EFL learners. The result was rejected the first research hypothesis that learners' short-term vocabulary retention would improve better through subtitle video clips. However, the second hypothesis was accepted that learners' long-term vocabulary retention would improve better through subtitle video clips. It can be concluded that subtitled video clips is not effective in learners' short-term retention. However, it is supported in learners' long-term retention. This research can be reinforced by research conducted by Franciosi et. al (2016) on the effect of simple simulation games on long-term vocabulary retention. The result was simple simulation games enhanced long-term vocabulary retention. From the researches above was same focus about vocabulary

retention in the specific aspects. Further, in grammar retention, there was same result with the research conducted by F.S. Wazeer (2023) on using the board race game as strategy to retain grammar for English as a second language (ESL) learners. The results indicate that the scores of the experimental group have exceeded the 2 control groups both at the immediate and delayed retention stages. Thus, the conclusion of this study was language games are more effective in retaining grammar in the long-term while the traditional teaching method proved less effective in achieving the same results.

The results of this study reinforce previous research which states that students' short-term vocabulary memory does not improve through authentic materials (subtitled video clips). in this study states that students' short-term vocabulary and grammar memory does not improve through MALL (Duolingo application). however, authentic materials and MALL can improve students' long-term vocabulary and grammar memory. Thus, it can be concluded that Duolingo Application is not effective in teenager students' short-term vocabulary and grammar memory. However, Duolingo is effective in teenager students' long-term vocabulary and grammar memory. Hence, Duolingo can be used for vocabulary and grammar learning especially for students' long-term memory and less recommended for vocabulary and grammar learning sprecifically for students' short-term memory.

CHAPTER V

CONCLUSION

In this closing section, the conclusion of all the contents of the discussion that have been discussed in the previous chapter is written, and suggestion.

5.1. Conclusion

The results of hypothesis testing in the previous chapter showed two main results regarding students' vocabulary and grammar retention. There was a significant difference between the pre-test and post-test scores of the experimental and control groups. It can be concluded that the application of Duolingo improved vocabulary and grammar retention only on students' long-term memory, while it did not have a significant effect on short-term memory. This is supported by the finding that the average post-test score for the long-term measurement was higher than the pre-test score, as confirmed by the Mann-Whitney test results. However, although the average post-test score for immediate measurement was higher than the pre-test score, the difference was not statistically significant according to the Mann-Whitney test. The study was considered effective in improving long-term vocabulary and grammar retention, as shown by the Mann-Whitney test results with an Asymp. Sig (2-tailed) value of 0.002, which is less than 0.05, leading to the rejection of H_0 and acceptance of H_a . In contrast, the study was found to be ineffective in improving short-term vocabulary and grammar retention, as evidenced by the Mann-Whitney test results with an Asymp. Sig (2-tailed) of 0.385, which is greater than 0.05, leading to the rejection of H_a and acceptance of H_0 . Based on these findings, it can be concluded that the study was successful in

improving long-term vocabulary and grammar retention but unsuccessful in improving short-term memory.

In addition, Duolingo is one of the effective media in teaching and learning vocabulary and grammar especially in students vocabulary and grammar retention for long-term memory for teenager students because Duolingo application able to provide new experiences to students in learning English, especially in retaining English vocabulary and grammar. Nevertheless, Duolingo is one of the ineffective media in students vocabulary and grammar retention for short-term memory for teenager students. It can be concluded that:

1. Retaining vocabulary and grammar in short-term memory using the Duolingo application was declared ineffective in teenager students' vocabulary and grammar retention in MTs. Islamiyah Sukopuro.
2. Retaining vocabulary and grammar in long-term memory using the Duolingo application was declared effective in teenager students' vocabulary and grammar retention in MTs. Islamiyah Sukopuro.

5.2. Suggestion

From the results of the research that has been done, the researcher makes several suggestions for several sections:

5.2.1. English teacher

Duolingo is suitable for helping students retain vocabulary and grammar, especially in long-term memory. With its scheduled repetition system and repetitive exercises, the application is effective in strengthening vocabulary and grammar acquisition gradually over time. However, Duolingo is less recommended for retaining vocabulary and grammar in short-term memory. The Duolingo application

focuses more on incremental learning that takes longer, making it less effective in helping students remember vocabulary and grammar quickly in the short-term.

5.2.2. Further researcher

This study can serve as a reference to assess the effectiveness of the Duolingo application in improving vocabulary and grammar retention among teenage students. By examining how well the app helps students retain what they've learned, this research provides valuable insights into its potential as a language learning tool. Furthermore, future research is recommended to delve deeper into this topic, with a specific focus on short-term memory retention. This is important because language retention is not only influenced by practice but also by how well information is remembered over time. Additionally, future researcher could benefit from exploring alternative methods or approaches that may offer a more comprehensive understanding of Duolingo's impact on vocabulary and grammar retention. For instance, integrating different forms of learning tools or comparison with other language apps could provide a fuller picture of the app's effectiveness. Moreover, future researchers should carefully consider the difficulty of the questions used in the study, ensuring they align with the general abilities of the participants. This would help ensure the results are more accurate and reflective of the students' actual capabilities.

REFERENCES

- Abbasi, A., & Poor, B. (2021). *The Effect of Post-teaching Techniques on the English Vocabulary Recall and Retention of Iranian Students with Learning Disability* Keywords : *Cooperative Learning , Diglot Weave , Learning Disability (LD) , Post-teaching Techniques , Retention , Vocabula*. 40(1), 117–152. <https://doi.org/10.22099/jtls.2021.38334.2878>
- Abdulkarimova N.A, & Zubaydova N.N. (2021). Deductive and Inductive Approaches to Teaching Grammar. *JournalNX*, 372–376.
- Adulkareem Alkamel, M. A., Chouthaiwale, S. S., & Adulkareem Santosh Chouthaiwale, M. S. (2018). the Use of Ict Tools in English Language Teaching and Learning:a Literature Review. *Journal of English Language and Literature (JOELL)*, 5(2), 29–33.
- Amin, H., & Malik, A. S. (2013). *Human memory retention and recall processes*. 18(4), 330–344.
- Andriani, A., Yuniar, V. D., & Abdullah, F. (2021). Teaching English Grammar in an Indonesian Junior High School. *AL-ISHLAH: Jurnal Pendidikan*, 13(2), 1046–1056. <https://doi.org/10.35445/alishlah.v13i2.956>
- Asyiah, D. N. (2017). the Vocabulary Teaching and Vocabulary Learning: Perception, Strategies, and Influences on Students' Vocabulary Mastery. *Jurnal Bahasa Lingua Scientia*, 9(2), 293–318. <https://doi.org/10.21274/lis.2017.9.2.133-158>
- Beauprez, N. (2021). *A Teacher's Perspective on the Influence of Extramural English on the English proficiency of their Students*.
- Bindu CN. (2016). Impact of ICT on Teaching and Learning: A Literature Review. *International Journal of Management and Commerce Innovations*, 4(1), 24–31. www.researchpublish.com
- Dakhi, S., & Fitria, T. N. (2019). The Principles and the Teaching of English Vocabulary: A Review. *JET (Journal of English Teaching)*, 5(1), 15. <https://doi.org/10.33541/jet.v5i1.956>
- Dalimunthe, L., & Haryadi, R. N. (2022). The Effect of Learning Methods and

- Vocabulary Mastery on English Speaking Ability. *Lingua Educationist: International Journal of Language Education*, 1(1), 1–7. <https://doi.org/10.54099/le.v1i1.58>
- Douglas-Morris, J., Ritchie, H., Willis, C., & Reed, D. (2021). Identification-Based Multiple-Choice Assessments in Anatomy can be as Reliable and Challenging as Their Free-Response Equivalents. *Anatomical Sciences Education*, 14(3), 287–295. <https://doi.org/10.1002/ase.2068>
- Elfiona, E., Zaim, M., & Refnaldi. (2019). Mobile-Based Media as the Solution in Teaching and Learning Listening Skill. *Journal of Physics: Conference Series*, 1387(1). <https://doi.org/10.1088/1742-6596/1387/1/012024>
- Emad-Ul-Haq, Q., Hussain, M., Aboalsamh, H., Bamatraf, S., Malik, A. S., & Amin, H. U. (2019). *A Review on understanding Brain, and Memory Retention and Recall Processes using EEG and fMRI techniques*. April. <http://arxiv.org/abs/1905.02136>
- Fadilah, A., & Kanya, N. A. (2023). *Pengertian Media , Tujuan , Fungsi , Manfaat dan Urgensi Media Pembelajaran*. 1(2).
- Güven, B. (2018). The Effect of Using Caricatures on Vocabulary Retention in Foreign Language Teaching. *International Journal Of Eurasia Social Sciences*, 35(3), 193–194. <https://doi.org/10.1002/da.22743>
- Hariati, P. (2020). Improving Students' Vocabulary Mastery through Teaching Real Objects. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 3(2), 740–748. <https://doi.org/10.33258/birle.v3i2.905>
- Helwa, H. (2017). Using Mobile Assisted Language Learning (MALL) Approach for Developing Prospective Teachers' EFL Listening Comprehension Skills and Vocabulary Learning. *Journal of Research in Curriculum Instruction and Educational Technology*, 3(4), 133–176. <https://doi.org/10.21608/jrciet.2017.24440>
- Irzawati, I., & Unamo, A. F. (2023). Students' Perceptions and Attitudes towards the Utilization of Duolingo in EFL Learning. *J-SHMIC : Journal of English*

- for *Academic*, 10(2), 123–138.
[https://doi.org/10.25299/jshmic.2023.vol10\(2\).13649](https://doi.org/10.25299/jshmic.2023.vol10(2).13649)
- Islam, A. B. M. S., & Hasan, M. (2020). The Effectiveness of Mobile Assisted Language Learning (MALL) on ESL Listening Skill. *NOBEL: Journal of Literature and Language Teaching*, 11(2), 188–202.
<https://doi.org/10.15642/nobel.2020.11.2.188-202>
- Khoshsima, H., & Khosravi, M. (2021). Vocabulary Retention of EFL Learners through the Application of ANKI, WhatsApp and Traditional Method. *Journal of Foreign Language Teaching and Translation Studies*, 6(4), 77–98.
<https://doi.org/10.22034/efl.2022.325424.1136>
- Lin, C. J., Hwang, G. J., Fu, Q. K., & Cao, Y. H. (2020). Facilitating EFL students' English grammar learning performance and behaviors: A contextual gaming approach. *Computers and Education*, 152(November 2019), 103876.
<https://doi.org/10.1016/j.compedu.2020.103876>
- Maulina, M., Ladjagang, R., Nasrullah, R., M. Esteban Jr, A., Hastianah, H., & Herianah, H. (2022). Conceptualizing Research Methods Used in Teaching Listening Skill Studies Using Social Media and Technological Tools. *Journal of Education and Teaching (JET)*, 3(1), 69–83.
<https://doi.org/10.51454/jet.v3i1.140>
- Nhan, L. K., & Yen, P. H. (2021). *The Effects of Using Infographics-based Learning on EFL Learners' Grammar Retention*. August, 255–265.
- Niah, S. (2019). *The Utilization of Duolingo to Improve the Speaking and Listening Skills of Junior High School Students in Pekanbaru*. 373, 54–59.
- Nurchurifiani, E., Nissa, R. N., & Febriyanti, F. (2021). Improving Students' Vocabulary Mastery Through the Keyword Technique At The Tenth Grade of SMAN 2 Tulang Bawang Tengah. *Journal Corner of Education, Linguistics, and Literature*, 1(2), 139–147. <https://doi.org/10.54012/jcell.v1i2.28>
- Phuong, H. Y., Nguyen, T., & Nguyen, P. (2017). *The Impact of Board Games on EFL Learners' Grammar Retention* Hoang Yen Phuong, Thao Nguyen Pham Nguyen. 7(3), 61–66. <https://doi.org/10.9790/7388-0703026166>

- Pramesti, & Susanti, A. (2020). Students' perception of the use of mobile application duolingo for learning english. *International Journal of Scientific and Technology Research*, 9(1), 1800–1804.
- Purwanto, H. N., Faridi, A., & Rozi, F. (2022). *The Effect of DuoLingo and SPADA to Teach Listening to Students with Different Achievement Levels*. 12(1), 87–95.
- Putri, Safitri, Khoirunnisa, Fianna, S. (2021). *Improvins Student's Listening Skill by Using Media of Duolingo Application*.
https://www.academia.edu/download/67707323/Final_Project_ELT_Trends_in_Asia.pdf
- Rauf, A., Hamid, S., & Ali Khan, W. (2023). Effect of Inductive and Deductive Teaching on Learning English Grammar for Undergraduate Students. *Journal of Education and Educational Development*, 10(2), 212–228.
<https://doi.org/10.22555/joeed.v10i2.836>
- Rukminingsih, Adnan, G., & Latief, M. A. (2020). Metode Penelitian Pendidikan. Penelitian Kuantitatif, Penelitian Kualitatif, Penelitian Tindakan Kelas. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).
- Ruzmetova, M., & Kayumova, G. (2020). the Role of Teaching Vocabulary Competence in English. *Academic Research in Educational Sciences Volume*, 1(3), 2181–1385. www.ares.uz
- Savira, N. (2020). The use of Dualingo application to enhance junior high school student's english vocabulary. *English Education, Faculty of Language and Arts, Surabaya State University*, 8(2), 17–24.
- Schurz, A., & Coumel, M. (2022). *Accuracy and Fluency Teaching and the Role of Extramural English : A Tale of Three Countries*. 1–15.
- Shiva Kaivanpanah, Is'haaq Akbarian, H. S. (2021). *The Effect of Explicit , Implicit , and Modified-Implicit Instruction on EFL Learners ' Vocabulary Learning and Retention*. 9(July), 129–146.
- Soesana, A., Subakti, H., Salamun, S., Tasrim, I. W., Karwanto, K., Falani, I., Bukidz, D. P., & Pasaribu, A. N. (2023). *Metodologi Penelitian Kualitatif*.

- Sukarya, D., Kamil, A. B., Utami, P. P., & Karawang, U. S. (2022). *Students' Experiences in Implementing Duolingo -Assisted Listening Learning*. 5, 3941–3946.
- Sürücü, L., & Maslakçı, A. (2020). Validity and Reliability in Quantitative Research. *Business & Management Studies: An International Journal*, 8(3), 2694–2726. <https://doi.org/10.15295/bmij.v8i3.1540>
- Tiara, A. D., Rahman, M. A., & Handrianto, C. (2021). *International Journal of Education , Information Technology and Others (IJEIT)*. 4(4), 690–701. <https://doi.org/10.5281/zenodo.5775915>
- Utomo, D. T. P., & Ahsanah, F. (2020). Utilizing Digital Comics in College Students' Grammar Class. *Journal of English Language Teaching and Linguistics*, 5(3), 393. <https://doi.org/10.21462/jeltl.v5i3.449>

APPENDICES

Appendix I

RENCANA PELAKSANAAN PEMBELAJARAN BAHASA INGGRIS KELAS 7

A. Informasi Umum

Identitas Sekolah	MTs. Islamiyah Sukopuro
Nama Penyusun	Lina Ma'atus Sholikhah
Tahun	2024
Jenjang/Kelas	SMP/VII
Alokasi waktu	2 x 40 menit
Kompetensi Awal	Bertanya dan menjawab kosa kata sederhana
Sarana dan Prasarana	<ul style="list-style-type: none">• Laptop• Bahan ajar
Target peserta didik	Peserta didik regular

B. Kompetensi Inti

Tujuan Pembelajaran	Peserta didik dapat mengungkapkan secara lisan maupun tulisan mengenai kosa kata sederhana tentang kata ganti, kata kerja dasar, dan bisa menyusun kalimat sederhana dari kosa kata tersebut dengan benar
Pemahaman bermakna	<ul style="list-style-type: none">• Peserta didik dapat menyatakan kata ganti orang maupun barang• Peserta didik dapat menyatakan kata kerja sederhana <p>Peserta didik dapat membuat kalimat dari kosa kaa tersebut</p>
Materi Ajar, Alat, Bahan dan Metode	
Materi Ajar	Basic Vocabulary
Alat dan Bahan	Aplikasi Duolingo

Metode	Metode games berbasis teknologi	
Kegiatan Pembelajaran		Alokasi Waktu
Pendahuluan	<ul style="list-style-type: none"> • Guru mengawali pembelajaran dengan mengucapkan salam • Peserta didik dan guru melakukan pembiasaan dengan membaca do'a dan memeriksa kehadiran peserta didik • Peserta didik menjawab pertanyaan berkaitan dengan bertanya jawab mengenai kosa kata dasar • Peserta didik mendengarkan tujuan pembelajaran, mengkaitkan materi yang akan dipelajari dengan kehidupan sehari-hari 	10 menit
Kegiatan inti	<ul style="list-style-type: none"> • Peserta didik menyiapkan smartpone untuk membuka aplikasi Duolingo • Peserta didik membuka aplikasi Duolingo dan diberi arahan oleh guru untuk langkah selanjutnya • Peserta didik mulai bermain aplikasi Duolingo dengan menjawab soal yang tertera pada aplikasi • Peserta didik diperkenankan bertanya mengenai kesulitan selama mengerjakan soal pada aplikasi tersebut • Setelah menyelesaikan permainan, peserta didik diberi soal post-test immediate measurement berisi 50 	60 menit

	butir soal multiple choice <ul style="list-style-type: none"> • Setelah menyelesaikan post-test immediate measurement, peserta didik mengumpulkan jawaban kepada guru • Peserta didik diberi kesempatan bertanya mengenai kesulitan selama mengerjakan post-test immediate measurement 	
Penutup	<ul style="list-style-type: none"> • Peserta didik menuliskan hal-hal apa saja yang mereka pelajari dari materi yang disampaikan pada pertemuan tersebut • Bersama guru, peserta didik menyimpulkan pembelajaran tentang basic vocabulary • Guru dan peserta didik mengakhiri pembelajaran dengan do'a • Guru mengakhiri pembelajaran dengan salam 	10 menit

Appendix II

Soal Pre-Test

Translate it into English!

1. Pria...
 - a. Girl
 - b. Man
 - c. Boy
 - d. Woman
2. Anak laki-laki...
 - a. Woman
 - b. Boy
 - c. Man
 - d. Girl
3. Wanita...
 - a. Man
 - b. Woman
 - c. Girl
 - d. Boy
4. Saya seorang wanita
 - a. I am a man
 - b. I am a girl
 - c. I am a boy
 - d. I am a woman
5. Saya seorang anak perempuan
 - a. I am a man
 - b. I am a girl
 - c. I am a boy
 - d. I am a woman
6. Wanita itu minum air tersebut
 - a. The woman eats the water
 - b. The woman drinks the water
 - c. The man eats the water

- d. The man drinks the water
- 7. Pria, wanita, anak laki-laki, anak perempuan
 - a. Man, woman, boy, girl
 - b. Girl, boy, woman, man
 - c. Woman, man, girl, boy
 - d. Boy, woman, man, girl
- 8. Seorang anak perempuan
 - a. A man
 - b. A girl
 - c. The woman
 - d. The boy
- 9. Saya seorang pria
 - a. I am a man
 - b. I am a girl
 - c. I am a woman
 - d. he is a man
- 10. Pria itu minum air
 - a. The man drinks water
 - b. The man drinks milk
 - c. The man eats an apple
 - d. The man eats bread
- 11. Saya makan roti
 - a. I eat an apple
 - b. I drink milk
 - c. I eat bread
 - d. I drink water
- 12. Sebuah apel
 - a. An apple
 - b. The apple
 - c. A apple
 - d. I apple
- 13. Dia makan

- a. I eat
 - b. You eat
 - c. She eats
 - d. We eat
14. Seorang wanita dan sebuah apel
- a. A man and an apple
 - b. A girl and an apple
 - c. A woman and an apple
 - d. A boy and an apple
15. Anak perempuan itu makan sebuah apel
- a. The boy eats bread
 - b. The girl eats an apple
 - c. The girl eats bread
 - d. The woman eats an apple
16. Saya adalah pria itu
- a. I am the girl
 - b. I am the boy
 - c. I am a man
 - d. I am the man
17. Saya makan sebuah apel dan dia makan roti
- a. I eat an apple and she eats bread
 - b. I drink water and she eats an apple
 - c. She eats bread and I eat an apple
 - d. She eats an apple and I eat bread

Translate it into Indonesian!

18. Girl
- a. Pria
 - b. Anak perempuan
 - c. Anak laki-laki
 - d. Wanita
19. I
- a. Saya

- b. Kamu
 - c. Dia
 - d. Kami
20. I am a man
- a. Saya seorang wanita
 - b. Saya seorang anak laki-laki
 - c. Saya seorang pria
 - d. Saya seorang anak perempuan
21. I eat an apple
- a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya makan kue lapis
22. Man and woman
- a. Anak laki-laki dan anak perempuan
 - b. Pria dan anak perempuan
 - c. Pria dan wanita
 - d. Wanita dan pria
23. She eats bread
- a. Dia minum roti
 - b. Dia makan air
 - c. Dia makan roti
 - d. Dia minum air
24. He drinks
- a. Dia makan
 - b. Dia minum
 - c. Dia membaca
 - d. Dia menulis
25. He drinks the water
- a. Dia meminum air itu
 - b. Dia meminum
 - c. Dia meminum air

- d. Dia makan air itu
- 26. She eats an apple
 - a. Dia memakan sebuah apel
 - b. Dia memakan sepotong roti
 - c. Dia meminum air
 - d. Dia meminum apel
- 27. I drink water
 - a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya minum air
- 28. He eats bread
 - a. Dia makan apel
 - b. Dia makan roti
 - c. Dia minum air
 - d. Dia makan
- 29. The boy eats an apple
 - a. Pria itu makan sebuah apel
 - b. Anak perempuan itu makan sebuah apel
 - c. Anak laki-laki itu makan sebuah apel
 - d. Wanita itu makan sebuah apel
- 30. A man drinks water
 - a. Seorang wanita minum susu
 - b. Seorang wanita minum air
 - c. Seorang pria minum air
 - d. Seorang pria makan roti
- 31. The man eats
 - a. Pria itu makan
 - b. Wanita itu minum
 - c. Anak laki-laki itu makan
 - d. Anak perempuan itu minum
- 32. He drinks water

- a. Dia makan air
 - b. Dia minum air
 - c. Dia makan roti
 - d. Dia minum susu
33. The girl, the woman
- a. Pria itu, wanita itu
 - b. Anak perempuan itu, wanita itu
 - c. Pria itu, anak laki-laki itu
 - d. Anak laki-laki itu, wanita itu
34. I eat an apple
- a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya minum air

Fill the blank of the questions below!

35. I am ____ boy
- a. an
 - b. a
 - c. it
 - d. are
36. I am ____ woman
- a. an
 - b. it
 - c. a
 - d. are
37. ____ am a girl
- Saya seorang anak perempuan
- a. She
 - b. He
 - c. We
 - d. I
38. ____ boy

Seorang anak laki-laki

- a. An
- b. It
- c. He
- d. A

39. He ____ a man

- a. are
- b. am
- c. is
- d. were

40. She ____ a woman

- a. are
- b. is
- c. am
- d. an

41. Eat ____ apple

Makan sebuah apel

- a. an
- b. a
- c. is
- d. are

42. She is ____ girl and I am ____ boy

- a. an, a
- b. a, a
- c. a, an
- d. an, an

43. I am a man and she ____ a woman

- a. are
- b. am
- c. is
- d. were

44. He ____ a boy

- a. am
- b. is
- c. are
- d. it

45. He ____ bread

- a. eat
- b. eating
- c. eats
- d. ate

46. The man ____

- a. drinks
- b. eat
- c. drinking
- d. drink

47. I eat apple and she ____ bread

- a. eat
- b. eats
- c. drink
- d. drinks

48. I eat ____ apple and she eats bread

- a. an
- b. a
- c. I
- d. we

49. The girl ____ bread

- a. eat
- b. drink
- c. eats
- d. drinks

50. She ____

Dia minum

- a. eat

- b. eats
- c. drink
- d. drinks

Kunci Jawaban

- | | |
|------------------------------------|-----------------------------------|
| 1. b. Man | 26. a. Dia memakan sebuah apel |
| 2. b. Boy | 27. d. Saya minum air |
| 3. b. Woman | 28. b. Dia makan roti |
| 4. d. I am a woman | 29. c. Anak laki-laki itu makan |
| 5. b. I am a girl | sebuah apel |
| 6. b. The woman drinks the water | 30. b. Seorang wanita minum air |
| 7. a. Man, woman, boy, girl | 31. a. Pria itu makan |
| 8. b. A girl | 32. b. Dia minum air |
| 9. a. I am a man | 33. b. Anak perempuan itu, wanita |
| 10. a. The man drinks water | itu |
| 11. c. I eat bread | 34. a. Saya makan sebuah apel |
| 12. a. An apple | 35. b. a |
| 13. c. She eats | 36. c. a |
| 14. c. A woman and an apple | 37. d. I |
| 15. b. The girl eats an apple | 38. d. A |
| 16. d. I am the man | 39. c. is |
| 17. a. I eat an apple and she eats | 40. b. is |
| bread | 41. a. an |
| 18. b. Anak perempuan | 42. b. a, a |
| 19. a. Saya | 43. c. is |
| 20. c. Saya seorang pria | 44. b. is |
| 21. a. Saya makan sebuah apel | 45. c. eats |
| 22. c. Pria dan wanita | 46. a. drinks |
| 23. a. Dia minum roti | 47. b. eats |
| 24. b. Dia minum | 48. a. an |
| 25. a. Dia meminum air itu | 49. c. eats |
| | 50. d. drinks |

Appendix III

Soal Post-Test Immediate Measurement

Translate it into English!

1. Anak perempuan...
 - a. Boy
 - b. Girl
 - c. Woman
 - d. Man
2. Apel...
 - a. Apple
 - b. Boy
 - c. Girl
 - d. Man
3. Air...
 - a. Bread
 - b. Girl
 - c. Water
 - d. Boy
4. Dia seorang anak perempuan
 - a. He is a boy
 - b. She is a woman
 - c. He is a man
 - d. She is a girl
5. Dia seorang pria
 - a. He is a boy
 - b. She is a woman
 - c. He is a man
 - d. She is a girl
6. Anak laki-laki itu makan roti
 - a. The man eats rice
 - b. The man eats bread
 - c. The girl eats bread

- d. The boy eats bread
- 7. Seorang anak laki-laki, seorang anak perempuan
 - a. A man, a boy
 - b. A girl, a woman
 - c. A boy, a girl
 - d. A man, a girl
- 8. Roti itu
 - a. A bread
 - b. An bread
 - c. The bread
 - d. I bread
- 9. Wanita itu minum
 - a. The woman drinks
 - b. The woman eats
 - c. The boy eats
 - d. The girl drinks
- 10. Dia minum air
 - a. You drink water
 - b. I drink water
 - c. He drinks water
 - d. We drink water
- 11. Saya makan roti itu
 - a. I eat the apple
 - b. I eat the bread
 - c. She eats the bread
 - d. The man eats the water
- 12. Seorang anak laki-laki
 - a. A man
 - b. An apple
 - c. A girl
 - d. A boy
- 13. Saya minum

- a. I drink
 - b. You drink
 - c. She drinks
 - d. He drinks
14. Saya minum dan saya makan
- a. I eat and i drink
 - b. I eat and i eat
 - c. I drink and i eat
 - d. I drink and i drink
15. Anak perempuan itu minum air
- a. The girl drinks milk
 - b. The girl drinks water
 - c. The girl eats water
 - d. The girl eats an apple
16. Dia adalah wanita itu
- a. He is the man
 - b. She is the man
 - c. She is the woman
 - d. I am the woman
17. Dia makan sebuah apel dan pria itu minum air
- a. She eats an apple and the man drinks water
 - b. He eats bread and the girl drinks water
 - c. I eat an apple and the woman eats bread
 - d. The boy eats an apple and he drinks water

Translate it into Indonesian!

18. A woman...
- a. Seorang anak perempuan
 - b. Seorang wanita
 - c. Seorang pria
 - d. Seorang anak laki-laki
19. Eat...
- a. Minum

- b. Makan
 - c. Apel
 - d. Saya
20. He is a boy
- a. Dia seorang pria
 - b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - d. Dia seorang anak laki-laki
21. She is a girl
- a. Dia seorang pria
 - b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - d. Dia seorang anak laki-laki
22. A boy and a girl
- a. Seorang pria dan seorang anak laki-laki
 - b. Seorang pria dan seorang wanita
 - c. Seorang wanita dan seorang anak perempuan
 - d. Seorang anak laki-laki dan seorang anak perempuan
23. A woman eats an apple
- a. Seorang wanita makan sepotong roti
 - b. Seorang pria makan sebuah apel
 - c. Seorang pria makan sepotong roti
 - d. Seorang wanita makan sebuah apel
24. He eats
- a. Dia makan
 - b. Dia minum
 - c. Dia membaca
 - d. Dia menulis
25. He eats an apple
- a. Dia makan roti
 - b. Dia minum air
 - c. Dia makan sepotong roti

- d. Dia makan sebuah apel
- 26. She is a girl
 - a. Dia seorang pria
 - b. Dia seorang wanita
 - c. Dia seorang anak perempuan
 - d. Dia seorang anak laki-laki
- 27. Eat an apple
 - a. Minum air
 - b. Makan sebuah apel
 - c. Makan roti
 - d. Makan nasi
- 28. I eat an apple
 - a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya makan kue lapis
- 29. The girl drinks water
 - a. Anak perempuan itu makan roti
 - b. Anak laki-laki itu minum air
 - c. Anak laki-laki itu makan apel
 - d. Anak perempuan itu minum air
- 30. He drinks the water
 - a. Dia meminum air itu
 - b. Dia meminum
 - c. Dia meminum air
 - d. Dia makan air itu
- 31. The boy eats
 - a. Pria itu makan
 - b. Anak perempuan itu makan
 - c. Anak laki-laki itu makan
 - d. Wanita itu makan
- 32. He eats bread

- a. Dia makan apel
 - b. Dia makan roti
 - c. Dia minum air
 - d. Dia makan
33. The boy, the girl
- a. Pria itu, wanita itu
 - b. Wanita itu, anak perempuan itu
 - c. Anak laki-laki itu, anak perempuan itu
 - d. Pria itu, anak laki-laki itu
34. I drink water
- a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya minum air

Fill the blank of the questions below!

35. ____ girl eats an apple
Anak perempuan itu makan sebuah apel
- a. The
 - b. A
 - c. An
 - d. She
36. ____ boy eats an apple and I eat bread
Anak laki-laki itu makan sebuah apel dan saya makan roti
- a. An
 - b. A
 - c. The
 - d. He
37. I eat ____ apple
Saya makan apel itu
- a. An
 - b. The
 - c. A

d. their

38. I ____ bread

a. eats

b. eat

c. am

d. drink

39. She ____ bread

a. eating

b. eat

c. eats

d. drinks

40. She ____ a woman and I am a girl

a. am

b. are

c. is

d. were

41. He ____ a boy

a. am

b. are

c. is

d. were

42. ____ is a man

a. He

b. She

c. You

d. I

43. I ____

Saya makan

a. eats

b. drinks

c. drink

d. eat

44. I ____ a man

- a. You
- b. are
- c. am
- d. is

45. She ____ a girl and I am a boy

- a. are
- b. am
- c. you
- d. is

46. She ____ a woman

- a. are
- b. am
- c. you
- d. is

47. I am ____ man

- a. a
- b. an
- c. is
- d. are

48. He is ____ boy

- a. a
- b. an
- c. is
- d. are

49. A boy, a ____

Seorang anak laki-laki, seorang anak perempuan

- a. man
- b. girl
- c. woman
- d. boy

50. I ____ and I eat

Saya minum dan saya makan

- a. eat
- b. eats
- c. drinks
- d. drink

Kunci Jawaban

- | | |
|-----------------------------------|-----------------------------------|
| 1. b. Girl | 26. c. Dia seorang anak perempuan |
| 2. a. Apple | 27. b. Makan sebuah apel |
| 3. c. Water | 28. a. Saya makan sebuah apel |
| 4. d. She is a girl | 29. d. Anak perempuan itu minum |
| 5. c. He is a man | air |
| 6. d. The boy eats bread | 30. a. Dia meminum air itu |
| 7. c. A boy, a girl | 31. c. Anak laki-laki itu makan |
| 8. c. The bread | 32. b. Dia makan roti |
| 9. a. The woman drinks | 33. c. Anak laki-laki itu, anak |
| 10. c. He drinks water | perempuan itu |
| 11. b. I eat the bread | 34. d. Saya minum air |
| 12. d. A boy | 35. a. The |
| 13. a. I drink | 36. c. The |
| 14. c. I drink and i eat | 37. b. The |
| 15. b. The girl drinks water | 38. b. eat |
| 16. c. She is the woman | 39. c. eats |
| 17. a. She eats an apple and the | 40. c. is |
| man drinks water | 41. c. is |
| 18. b. Seorang wanita | 42. a. He |
| 19. b. Makan | 43. d. eat |
| 20. d. Dia seorang anak laki-laki | 44. c. am |
| 21. b. Dia seorang anak perempuan | 45. d. is |
| 22. d. Seorang anak laki-laki dan | 46. d. is |
| seorang anak perempuan | 47. a. a |
| 23. d. Seorang wanita makan | 48. a. a |
| sebuah apel | 49. b. girl |
| 24. a. Dia makan | 50. d. drink |
| 25. d. Dia makan sebuah apel | |

Appendix IV

Soal Post-Test Longer Measurement

Translate it into English!

1. Roti...
 - a. Water
 - b. Bread
 - c. Man
 - d. Woman
2. Makan...
 - a. Drink
 - b. Girl
 - c. Man
 - d. Eat
3. Minum...
 - a. Drink
 - b. Girl
 - c. Man
 - d. Eat
4. Saya seorang anak perempuan
 - a. I am a man
 - b. I am a girl
 - c. I am a boy
 - d. I am a woman
5. Dia seorang pria
 - a. He is a boy
 - b. She is a woman
 - c. He is a man
 - d. She is a girl
6. Pria itu minum air
 - a. The man drinks milk
 - b. The boy drinks water
 - c. The woman drinks water

- d. The man drinks water
- 7. Seorang pria, seorang wanita
 - a. A man, a woman
 - b. A girl, a woman
 - c. A boy, a girl
 - d. A man, a girl
- 8. Seorang anak laki-laki
 - a. A man
 - b. An apple
 - c. A girl
 - d. A boy
- 9. Saya seorang anak perempuan
 - a. I am a man
 - b. I am a girl
 - c. I am a woman
 - d. He is a man
- 10. Anak laki-laki itu makan
 - a. The man eats
 - b. The girl drinks
 - c. The boy eats
 - d. I eat
- 11. Dia makan roti
 - a. She eats an apple
 - b. She drinks milk
 - c. She eats bread
 - d. She drinks water
- 12. Seorang anak perempuan
 - a. A man
 - b. A girl
 - c. The woman
 - d. The boy
- 13. Saya makan

- a. I eat
 - b. You eat
 - c. She eats
 - d. We eat
14. Saya minum dan makan
- a. I eat and drink
 - b. I drink and drink
 - c. I eat and drinks
 - d. I drink and eat
15. Wanita itu makan sebuah apel
- a. The boy eats bread
 - b. The girl eats an apple
 - c. The girl eats bread
 - d. The woman eats an apple
16. Dia adalah anak laki-laki itu
- a. I am the girl
 - b. He is the boy
 - c. He is a man
 - d. I am the woman
17. Dia makan roti dan saya makan sebuah apel
- a. I eat an apple and she eats bread
 - b. I drink water and she eats an apple
 - c. She eats bread and I eat an apple
 - d. She eats an apple and I eat bread

Translate it into Indonesian!

18. Drink...
- a. Air
 - b. Minum
 - c. Makan
 - d. Dan
19. An apple....
- a. Seorang pria

- b. Sebuah apel
 - c. Seorang wanita
 - d. Seorang anak laki-laki
20. Bread....
- a. Air
 - b. Wanita
 - c. Dia
 - d. Roti
21. He is a man
- a. Dia seorang pria
 - b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - d. Dia seorang anak laki-laki
22. I eat bread
- a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya makan kue lapis
23. Man and girl
- a. Anak laki-laki dan anak perempuan
 - b. Pria dan anak perempuan
 - c. Pria dan wanita
 - d. Wanita dan pria
24. I drink water
- a. Dia minum roti
 - b. Saya makan air
 - c. Saya makan roti
 - d. Saya minum air
25. I eat
- a. Dia makan
 - b. Dia minum
 - c. Saya makan

- d. Saya minum
- 26. She eats the bread
 - a. Dia makan roti itu
 - b. Dia minum air
 - c. Dia makan sepotong roti
 - d. Dia makan sebuah apel
- 27. She is a woman
 - a. Dia seorang pria
 - b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - d. Dia seorang anak laki-laki
- 28. She eats an apple
 - a. Dia makan roti
 - b. Dia makan sebuah apel
 - c. Saya makan sebuah apel
 - d. Saya minum air
- 29. The man eats the bread
 - a. Pria itu makan roti itu
 - b. Anak perempuan itu makan sebuah apel
 - c. Anak laki-laki itu makan sepotong roti
 - d. Wanita itu makan sebuah apel
- 30. A woman drinks water
 - a. Seorang wanita minum susu
 - b. Seorang wanita minum air
 - c. Seorang pria minum air
 - d. Seorang pria makan roti
- 31. The girl drinks
 - a. Pria itu makan
 - b. Wanita itu minum
 - c. Anak laki-laki itu makan
 - d. Anak perempuan itu minum
- 32. I eat bread

- a. Dia makan apel
 - b. Saya makan roti
 - c. Saya minum air
 - d. Dia makan roti
33. A man, a woman
- a. Seorang wanita, seorang pria
 - b. Pria, wanita
 - c. Seorang pria, seorang wanita
 - d. Seorang pria, seorang anak perempuan
34. I am the woman
- a. Saya adalah seorang pria
 - b. Saya adalah pria itu
 - c. Saya adalah wanita itu
 - d. Saya adalah seorang anak perempuan

Fill the blank of the questions below!

35. The man ____
- a. eat
 - b. drinks
 - c. drinking
 - d. eating
36. I eat ____ apple and she eats bread
- a. an
 - b. a
 - c. I
 - d. you
37. ____ am a woman
- a. you
 - b. he
 - c. I
 - d. she
38. I eat ____ bread
- Saya makan roti itu

- a. a
- b. an
- c. your
- d. the

39. I am a man and she ____ a woman

- a. is
- b. am
- c. are
- d. us

40. I am ____ man

Saya adalah pria itu

- a. an
- b. the
- c. a
- d. is

41. I eat an apple and she ____ bread

- a. drinks
- b. eat
- c. eats
- d. drink

42. She is a girl and I am ____ boy

- a. an
- b. the
- c. a
- d. is

43. I ____ water

- a. drinking
- b. drink
- c. eating
- d. drinks

44. The girl ____ bread

- a. eats

b. drink

c. eat

d. eating

45. ____ woman eats

Wanita itu makan

a. An

b. The

c. A

d. Is

46. She ____ an apple

a. eating

b. eat

c. eats

d. drink

47. She is ____ girl and I am the boy

a. an

b. the

c. are

d. am

48. The woman eats ____ apple

a. an

b. a

c. is

d. are

49. A man and ____

Seorang pria dan sebuah apel

a. the bread

b. an apple

c. the water

d. a woman

50. ____ and I eat

Saya minum dan saya makan

- a. You eat
- b. She eats
- c. He drinks
- d. I drink

Kunci Jawaban

- | | |
|---------------------------------------------|-------------------------------------|
| 1. b. Bread | 26. a. Dia makan roti itu |
| 2. d. Eat | 27. c. Dia seorang wanita |
| 3. a. Drink | 28. b. Dia makan sebuah apel |
| 4. b. I am a girl | 29. a. Pria itu makan roti itu |
| 5. c. He is a man | 30. b. Seorang wanita minum air |
| 6. d. The man drinks water | 31. d. Anak perempuan itu minum |
| 7. a. A man, a woman | 32. b. Saya makan roti |
| 8. d. A boy | 33. c. Seorang pria, seorang wanita |
| 9. b. I am a girl | 34. c. Saya adalah wanita itu |
| 10. c. The boy eats | 35. b. drinks |
| 11. c. She eats bread | 36. a. an |
| 12. b. A girl | 37. c. I |
| 13. a. I eat | 38. d. the |
| 14. d. I drink and eat | 39. a. is |
| 15. d. The woman eats an apple | 40. b. the |
| 16. b. He is the boy | 41. c. eats |
| 17. c. She eats bread and I eat an
apple | 42. c. a |
| 18. b. Minum | 43. b. drink |
| 19. b. Sebuah apel | 44. a. eats |
| 20. d. Roti | 45. b. The |
| 21. a. Dia seorang pria | 46. c. eats |
| 22. c. Saya makan roti | 47. b. the |
| 23. b. Pria dan anak perempuan | 48. a. an |
| 24. d. Saya minum air | 49. b. an apple |
| 25. c. Saya makan | 50. d. I drink |

Appendix V

Instrument Validation Letter



KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jalan Gajayana 50. Telepon (0341) 552398 Faximile (0341) 552398 Malang
<http://fitk.uin-malang.ac.id> email : fitk@uin-malang.ac.id

Nomor : B-3/06/Un 03/FITK/PP 00 9/09/2024 30 September 2024
Lampiran : -
Perihal : Permohonan Menjadi Validator

Kepada Yth
Harir Mubarak, M.Pd
di - Tempat

Assalamualaikum Wr. Wb.

Sehubungan dengan proses penyusunan skripsi mahasiswa berikut.

Nama : Lina Mar'atus Sholikhah
NIM : 19180024
Program Studi : Tadris Bahasa Inggris (TBI)
Judul Skripsi : The Effectiveness of Using Duolingo for Teenager
Students to Enhance Vocabulary Retention
Dosen Pembimbing : Harir Mubarak, M Pd

maka dimohon Bapak/Ibu berkenan menjadi validator penelitian tersebut. Adapun segala hal berkaitan dengan apresiasi terhadap kegiatan validasi sebagaimana dimaksud sepenuhnya menjadi tanggung jawab mahasiswa bersangkutan

Demikian Permohonan ini disampaikan, atas perkenan dan kerjasamanya yang baik disampaikan terima kasih

Wassalamu'alaikum Wr. Wb.



Appendix VI

Validation Sheet



Validation Sheet English Vocabulary Test

"The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention"

Validator : Harir Mubarak, M.Pd
NIP : 198707082023211024
Expertise : Development of learning media
Instance : Maulana Malik Ibrahim State Islamic University Malang
Validation Date : 10 / 01 / 2024
(dd/mm/yyyy)

A. Introduction

This validation sheet aims to obtain an assessment from the Validator on my research instrument in the form 150 English questions in multiple-choice form. This instrument will be addressed to the research subjects, namely seventh-grade junior high school students. All comments and suggestions given are very important for the researcher to improve the quality of the instrument. Thank you for willingness to be a validator of my research.

B. Guidance

1. In this section, assess by ticking (✓) with the following criteria to the columns below:
 - 1 : Very Poor
 - 2 : Poor
 - 3 : Average
 - 4 : Good
 - 5 : Excellent
2. Please give comments and suggestions in the columns below.

C. Validation Sheet

No	Aspect	Score				
		1	2	3	4	5
1.	Suitability of instrument with basic competencies Basic Competence Penguasaan kosa kata dasar mengenai kata ganti, kata kerja dasar, dan kata benda serta dapat menyusun dalam kalimat sederhana dengan benar, serta dapat mengingat baik dalam jangka pendek maupun panjang.				✓	
2.	Instrument Indicator Clarity of question items contained in the research instrument				✓	
3.	Clarity of instrument on each question in the research instrument				✓	
4.	The research instrument is relevant with the research objectives				✓	
5.	The research instrument can help the researcher find out students' abilities in vocabulary retention				✓	
6.	The research instrument is easy to understand				✓	
7.	Each question has one correct or most correct answer				✓	
8.	The research using proper grammar				✓	
9.	The choice of answer to the research instrument is appropriate and logical in term of material				✓	
10.	The subject matter must be formulated clearly and unequivocally				✓	

D. Suggestion

I hope this instrument can be used to
 Sign up the data in the object field.

E. Conclusion

Based on the validation sheet above, it can be concluded that the instruments that have been made is:

1. The instrument can be used without revision.
2. The instrument can be used with alight revision.
3. The instrument can be used with many revisions.
4. The instrument can be used.

Malang, 1 October 2024

Validator



Harir Mubarak, M.Pd
198707082023211024

Appendix VII

Evidence of Consultation

BUKTI KONSULTASI
JURUSAN TADRIS BAHASA INGGRIS

Nama : Lina Mar'atus Sholikhah
NIM : 19180024
Judul : The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention
Dosen Pembimbing : Harir Mubarak, M.Pd

No.	Tgl/Bln/ Thn	Materi Konsultasi	Tanda Tangan Pembimbing Skripsi
1.	18 September 2024	Konsultasi Bab 1 – 3	
2.	23 September 2024	Melengkapi revisi pembimbing sebelumnya	
3.	27 September 2024	Revisi Bab 1 – 3	
4.	01 Oktober 2024	Finalisasi Bab 1 – 3	
5.	07 November 2024	Konsultasi Bab 4	
6.	31 Januari 2025	Konsultasi Bab 4 – 5	
7.	3 Februari 2025	Finalisasi bab 4 – 5	

Malang, 06 Februari 2025

Dosen Pembimbing,



Harir Mubarak, M.Pd
198707082023211024

Appendix VIII

Survey Permit Petition



KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jalan Gajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang
<http://fitk.uin-malang.ac.id>, email : fitk@uin-malang.ac.id

Nomor : 3495/Un.03.1/TL.00.1/10/2024
Sifat : Penting
Lampiran : -
Hal : Izin Survey

29 Oktober 2024

Kepada

Yth. Kepala MTs Islamiyah Sukopuro
di
Malang

Assalamu'alaikum Wr. Wb.

Dengan hormat, dalam rangka penyusunan proposal Skripsi pada Jurusan Tadris Bahasa Inggris (TBI) Fakultas Ilmu Tarbiyah dan Keguruan (FITK) Universitas Islam Negeri Maulana Malik Ibrahim Malang, kami mohon dengan hormat agar mahasiswa berikut:

Nama : Lina Mar'atus Sholikhah
NIM : 19180024
Tahun Akademik : Ganjil - 2024/2025
Judul Proposal : **The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention**

Diberi izin untuk melakukan survey/studi pendahuluan di lembaga/instansi yang menjadi wewenang Bapak/Ibu

Demikian, atas perkenan dan kerjasama Bapak/Ibu yang baik disampaikan terimakasih.

Wassalamu'alaikum Wr. Wb.



Dekan,
Wakil Dekan Bidang Akademik

Muhammad Walid, MA
19730823 200003 1 002

Tembusan :

1. Ketua Program Studi TBI
2. Arsip

Appendix IX

Survey Permit



Lembaga Pendidikan Ma'arif NU

MTs. ISLAMIYAH SUKOPURO

STATUS TERAKREDITASI "A"

NSM : 121 235 070 055 NPSN : 20581248

JL. Brawijaya 37 Sukopuro Jabung Telp. (0341) 786369

Email : mtsislamiyah@gmail.com

SURAT KETERANGAN

No : MTs.Is/SKT/15/XI/2024

Yang bertanda tangan dibawah ini :

Nama : Drs. Taufik Hidayat
Jabatan : Kepala MTs. Islamiyah
Alamat Kantor : Jl. Brawijaya 37 Sukopuro Jabung

Menyatakan bahwa saya bersedia menerima mahasiswa survey :

Nama : Lina Mar'atus Sholikhah
NIM : 19180024
Tahun Akademik : Ganjil- 2024/2025
Asal Instansi : UIN Maulana Malik Ibrahim Malang
Judul Proposal : The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention

Diberikan izin untuk melakukan survey/studi pendahuluan di MTs Islamiyah Sukopuro Jabung.

Demikian surat kesediaan ini dibuat untuk dipergunakan sebagaimana mestinya



Malang, 04 November 2024

Kepala MTs. Islamiyah Sukopuro,

Drs. TAUFIK HIDAYAT

Appendix X

Research Permit Letter

														
KEMENTERIAN AGAMA REPUBLIK INDONESIA UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG FAKULTAS ILMU TARBIYAH DAN KEGURUAN Jalan Gajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang http://fitk.uin-malang.ac.id email : fitk@uin-malang.ac.id														
Nomor	: 3565/Un.03.1/TL.00.1/11/2024	01 November 2024												
Sifat	: Penting													
Lampiran	: -													
Hal	: Izin Penelitian													
<p>Kepada</p> <p>Yth. Kepala MTs. Islamiyah Sukopuro di Malang</p> <p>Assalamu'alaikum Wr. Wb.</p> <p>Dengan hormat, dalam rangka menyelesaikan tugas akhir berupa penyusunan skripsi mahasiswa Fakultas Ilmu Tarbiyah dan Keguruan (FITK) Universitas Islam Negeri Maulana Malik Ibrahim Malang, kami mohon dengan hormat agar mahasiswa berikut:</p> <table border="0"><tr><td>Nama</td><td>: Lina Mar'atus Sholikhah</td></tr><tr><td>NIM</td><td>: 19180024</td></tr><tr><td>Jurusan</td><td>: Tadris Bahasa Inggris (TBI)</td></tr><tr><td>Semester - Tahun Akademik</td><td>: Ganjil - 2024/2025</td></tr><tr><td>Judul Skripsi</td><td>: The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention</td></tr><tr><td>Lama Penelitian</td><td>: November 2024 sampai dengan Januari 2024 (3 bulan)</td></tr></table> <p>diberi izin untuk melakukan penelitian di lembaga/instansi yang menjadi wewenang Bapak/Ibu.</p> <p>Demikian, atas perkenan dan kerjasama Bapak/Ibu yang baik di sampaikan terimakasih.</p> <p>Wassalamu'alaikum Wr. Wb.</p> <div style="text-align: right;"><p>Maknakan, Maknakan Bidang Akadademik Mammad Walid, MA 19730823 200003 1 002</p></div>			Nama	: Lina Mar'atus Sholikhah	NIM	: 19180024	Jurusan	: Tadris Bahasa Inggris (TBI)	Semester - Tahun Akademik	: Ganjil - 2024/2025	Judul Skripsi	: The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention	Lama Penelitian	: November 2024 sampai dengan Januari 2024 (3 bulan)
Nama	: Lina Mar'atus Sholikhah													
NIM	: 19180024													
Jurusan	: Tadris Bahasa Inggris (TBI)													
Semester - Tahun Akademik	: Ganjil - 2024/2025													
Judul Skripsi	: The Effectiveness of Using Duolingo for Teenager Students to Enhance Vocabulary Retention													
Lama Penelitian	: November 2024 sampai dengan Januari 2024 (3 bulan)													
<p>Tembusan :</p> <ol style="list-style-type: none">1. Yth. Ketua Program Studi TBI2. Arsip														

Appendix XI

Students' Answer Sheet

Pre – Test

Name : IZZA Rizki Aulia.
Class : VII A
Date of Test : Rabu, 06, Nov, 2024

Choose A, B, C, or D for the best answer!
Translate the questions into English!

- Pria...
 - Girl
 - Man
 - ☒ Boy
 - Woman
- Anak laki-laki...
 - Woman
 - ☒ Boy
 - Man
 - Girl
- Wanita...
 - Man
 - Woman
 - ☒ Girl
 - Boy
- Saya seorang wanita
 - I am a man
 - ☒ I am a girl
 - I am a boy
 - I am a woman
- Saya seorang anak perempuan
 - I am a man
 - I am a girl
 - I am a boy
 - ☒ I am a woman
- Wanita itu minum air tersebut
 - The woman eats the water
 - ☒ The woman drinks the water
 - The man eats the water
 - The man drinks the water
- Pria, wanita, anak laki-laki, anak perempuan
 - ☒ Man, woman, boy, girl
 - Girl, boy, woman, man
 - Woman, man, girl, boy
 - Boy, woman, man, girl
- Seorang anak perempuan
 - A man
 - A girl
 - ☒ The woman
 - The boy
- Saya seorang pria
 - ☒ I am a man
 - I am a girl
 - I am a woman
 - he is a man
- Pria itu minum air
 - ☒ The man drinks water
 - The man drinks milk
 - The man eats an apple
 - The man eats bread
- Saya makan roti
 - I eat an apple
 - I drink milk
 - ☒ I eat bread
 - I drink water
- Sebuah apel
 - ☒ An apple
 - The apple
 - A apple
 - I apple
- Dia makan
 - I eat
 - ☒ You eat
 - She eats
 - We eat
- Seorang wanita dan sebuah apel
 - A man and an apple
 - A girl and an apple
 - ☒ A woman and an apple
 - A boy and an apple
- Anak perempuan itu makan sebuah apel

CS | Berprestasi dengan Cerdas dan Beriman

- a. The boy eats bread
- ☒ The girl eats an apple
- c. The girl eats bread

16. Saya adalah pria itu

- a. I am the girl
- b. I am the boy
- c. I am a man
- ☒ I am the man

17. Saya makan sebuah apel dan dia makan roti

- ☒ I eat an apple and she eats bread
- b. I drink water and she eats an apple
- c. She eats bread and I eat an apple
- d. She eats an apple and I eat bread

Translate the questions into Indonesian!

18. Girl

- a. Pria
- ☒ Anak perempuan
- c. Anak laki-laki
- d. Wanita

19. I

- ☒ Saya
- b. Kamu
- c. Dia
- d. Kami

20. I am a man

- a. Saya seorang wanita
- ☒ Saya seorang anak laki-laki
- c. Saya seorang pria
- d. Saya seorang anak perempuan

21. I eat an apple

- ☒ Saya makan sebuah apel
- b. Saya makan nasi
- c. Saya makan roti
- d. Saya makan kue lapis

22. Man and woman

- ☒ Anak laki-laki dan anak perempuan
- b. Pria dan anak perempuan
- c. Pria dan wanita
- d. Wanita dan pria

23. She eats bread

- a. Dia minum roti

b. Dia makan air

- ☒ Dia makan roti
- d. Dia minum air

24. He drinks

- a. Dia makan
- ☒ Dia minum
- c. Dia membaca
- d. Dia menulis

25. He drinks the water

- a. Dia meminum air itu
- b. Dia meminum
- ☒ Dia meminum air
- d. Dia makan air itu

26. She eats an apple

- ☒ Dia memakan sebuah apel
- b. Dia memakan sepotong roti
- c. Dia meminum air
- d. Dia meminum apel

27. I drink water

- a. Saya makan sebuah apel
- b. Saya makan nasi
- c. Saya makan roti
- ☒ Saya minum air

28. He eats bread

- a. Dia makan apel
- ☒ Dia makan roti
- c. Dia minum air
- d. Dia makan

29. The boy eats an apple

- a. Pria itu makan sebuah apel
- b. Anak perempuan itu makan sebuah apel
- ☒ Anak laki-laki itu makan sebuah apel
- d. Wanita itu makan sebuah apel

30. A man drinks water

- a. Seorang wanita minum susu
- b. Seorang wanita minum air
- ☒ Seorang pria minum air
- d. Seorang pria makan roti

31. The man eats

- ☒ Pria itu makan
- b. Wanita itu minum

- c. Anak laki-laki itu makan
d. Anak perempuan itu minum

32. He drinks water

- a. Dia makan air
~~X~~ b. Dia minum air
c. Dia makan roti
d. Dia minum susu ✓

33. The girl, the woman

- a. Pria itu, wanita itu
~~X~~ b. Anak perempuan itu, wanita itu
c. Pria itu, anak laki-laki itu
d. Anak laki-laki itu, wanita itu

34. I eat an apple

- ~~X~~ a. Saya makan sebuah apel
b. Saya makan nasi
~~c~~ c. Saya makan roti
d. Saya minum air

Fill the blank of the questions below!

35. I am ____ boy

- ~~X~~ a. an
b. a
c. it
d. are

36. I am ____ woman

- ~~X~~ a. an
b. it
c. a
d. are

37. ____ am a girl

Saya seorang anak perempuan

- ~~a~~ a. She
b. He
c. We
~~X~~ d. I

38. ____ boy

Seorang anak laki-laki

- ~~a~~ a. An
b. It
~~X~~ c. He
d. A

39. He ____ a man

- a. are
b. am
c. is
d. were

40. She ____ a woman

- a. are
b. is
c. am
~~X~~ d. an

41. Eat ____ apple

Makan sebuah apel

- a. an
b. a
~~X~~ c. is
d. are

42. She is ____ girl and I am ____ boy

- ~~X~~ a. an, a
b. a, a
c. a, an
d. an, an

43. I am a man and she ____ a woman

- a. are
~~X~~ b. am
c. is
d. were

44. He ____ a boy

- a. am
~~X~~ b. is
c. are
d. it

45. He ____ bread

- ~~X~~ a. eat
b. eating
c. eats
d. ate

46. The man ____

- a. drinks
~~X~~ b. eat
c. drinking
d. drink

47. I eat apple and she ____ bread

- ~~a. eat~~
- b. eats
- c. drink
- d. drinks

48. I eat ___ apple and she eats bread

- ~~a. an~~
- b. a
- c. I
- d. we

49. The girl ___ bread

- ~~a. eat~~
- b. drink
- c. eats
- d. drinks

50. She ___

Dia minum

- a. eat
- b. eats
- c. drink
- ~~d. drinks~~

Good Luck

Post - Test Immediate Measurement I

Name : Pueri ariska septian
Class : VII A
Date of Test : 11-11-24

Choose A, B, C, or D for the best answer!

Translate the questions into English!

1. Anak perempuan...
a. Boy
☒ b. Girl
c. Woman
d. Man
2. Apel...
☒ a. Apple
b. Boy
c. Girl
d. Man
3. Air...
a. Bread
b. Girl
☒ c. Water
d. Boy
4. Dia seorang anak perempuan
a. He is a boy
b. She is a woman
c. He is a man
☒ d. She is a girl
5. Dia seorang pria
a. He is a boy
b. She is a woman
☒ c. He is a man
d. She is a girl
6. Anak laki-laki itu makan roti
a. The man eats rice
b. The man eats bread
c. The girl eats bread
☒ d. The boy eats bread
7. Seorang anak laki-laki, seorang anak perempuan
a. A man, a boy
b. A girl, a woman
☒ c. A boy, a girl
d. A man, a girl
8. Roti itu
a. A bread
b. An bread
☒ c. The bread
d. I bread
9. Wanita itu minum
☒ a. The woman drinks
b. The woman eats
c. The boy eats
d. The girl drinks
10. Dia minum air
a. You drink water
b. I drink water
☒ c. He drinks water
d. We drink water
11. Saya makan roti itu
a. I eat the apple
b. I eat the bread
c. She eats the bread
d. The man eats the water
12. Seorang anak laki-laki
a. A mai
b. An apple
c. A girl
☒ d. A boy
13. Saya minum
☒ a. I drink
b. You drink
c. She drinks
d. He drinks
14. Saya minum dan saya makan
a. I eat and i drink
b. I eat and i eat
☒ c. I drink and i eat
d. I drink and i drink
15. Anak perempuan itu minum air

- a. The girl drinks milk
 - ~~X~~ b. The girl drinks water
 - c. The girl eats water
 - d. The girl eats an apple
16. Dia adalah wanita itu
- a. He is the man
 - b. She is the man
 - ~~X~~ c. She is the woman
 - d. I am the woman
17. Dia makan sebuah apel dan pria itu minum air
- ~~X~~ a. She eats an apple and the man drinks water
 - b. He eats bread and the girl drinks water
 - c. I eat an apple and the woman eats bread
 - d. The boy eats an apple and he drinks water

Translate the questions into Indonesian!

18. A woman...
- a. Seorang anak perempuan
 - ~~X~~ b. Seorang wanita
 - c. Seorang pria
 - d. Seorang anak laki-laki
19. Eat...
- a. Minum
 - ~~X~~ b. Makan
 - c. Apel
 - d. Saya
20. He is a boy
- a. Dia seorang pria
 - b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - ~~X~~ d. Dia seorang anak laki-laki
21. She is a girl
- a. Dia seorang pria
 - ~~X~~ b. Dia seorang anak perempuan
 - c. Dia seorang wanita
 - d. Dia seorang anak laki-laki
22. A boy and a girl
- a. Seorang pria dan seorang anak laki-laki
 - b. Seorang pria dan seorang wanita
 - c. Seorang wanita dan seorang anak perempuan
 - d. Seorang anak laki-laki dan seorang anak perempuan

- ~~X~~ a. Seorang anak laki-laki dan seorang anak perempuan
23. A woman eats an apple
- a. Seorang wanita makan sepotong roti
 - ~~X~~ b. Seorang pria makan sebuah apel
 - c. Seorang pria makan sepotong roti
 - d. Seorang wanita makan sebuah apel
24. He eats
- ~~X~~ a. Dia makan
 - b. Dia minum
 - c. Dia membaca
 - d. Dia menulis
25. He eats an apple
- a. Dia makan roti
 - b. Dia minum air
 - c. Dia makan sepotong roti
 - ~~X~~ d. Dia makan sebuah apel
26. She is a girl
- a. Dia seorang pria
 - b. Dia seorang wanita
 - ~~X~~ c. Dia seorang anak perempuan
 - d. Dia seorang anak laki-laki
27. Eat an apple
- a. Minum air
 - ~~X~~ b. Makan sebuah apel
 - c. Makan roti
 - d. Makan nasi
28. I eat an apple
- ~~X~~ a. Saya makan sebuah apel
 - b. Saya makan nasi
 - c. Saya makan roti
 - d. Saya makan kue lapis
29. The girl drinks water
- a. Anak perempuan itu makan roti
 - b. Anak laki-laki itu minum air
 - c. Anak laki-laki itu makan apel
 - ~~X~~ d. Anak perempuan itu minum air
30. He drinks the water
- ~~X~~ a. Dia meminum air itu
 - b. Dia meminum
 - c. Dia meminum air

- d. Dia makan air itu
31. The boy eats
 a. Pria itu makan
 b. Anak perempuan itu makan
~~c. Anak laki-laki itu makan~~
 d. Wanita itu makan
32. He eats bread
 a. Dia makan apel
~~b. Dia makan roti~~
 c. Dia minum air
 d. Dia makan
33. The boy the girl
 a. Pria itu, wanita itu
 b. Wanita itu, anak perempuan itu
~~c. Anak laki-laki itu, anak perempuan itu~~
 d. Pria itu, anak laki-laki itu
34. I drink water
 a. Saya makan sebuah apel
 b. Saya makan nasi
 c. Saya makan roti
~~d. Saya minum air~~

Fill the blank of the questions below!

35. ___ girl eats an apple
 Anak perempuan itu makan sebuah apel
~~a. The~~
 b. A
 c. An
 d. She
36. ___ boy eats an apple and I eat bread
 Anak laki-laki itu makan sebuah apel dan saya makan roti
 a. An
 b. A
~~c. The~~
 d. He
37. I eat ___ apple
 Saya makan apel itu
~~a. An~~
 b. The
 c. A
 d. their
38. I ___ bread
~~a. eats~~
 b. eat
 c. am
 d. drink
39. She ___ bread
 a. eating
~~b. eat~~
 c. eats
 d. drinks
40. She ___ a woman and I am a girl
 a. am
 b. are
~~c. is~~
 d. were
41. He ___ a boy
~~a. am~~
 b. are
 c. is
 d. were
42. ___ is a man
 a. He
 b. She
 c. You
~~d. I~~
43. I ___
 Saya makan
~~a. eats~~
 b. drinks
 c. drink
 d. eat
44. I ___ a man
 a. You
 b. are
 c. am
~~d. is~~
45. She ___ a girl and I am a boy
 a. are
 b. am
 c. you
~~d. is~~

46. She ___ a woman

a. are

b. am

c. you

~~d. is~~

47. I am ___ man

~~a. a~~

b. an

c. is

d. are

48. He is ___ boy

~~a. a~~

b. an

c. is

d. are

49. A boy, a ___

Seorang anak laki-laki, seorang anak perempuan

a. man

~~b. girl~~

c. woman

d. boy

50. I ___ and I eat

Saya minum dan saya makan

a. eat

b. eats

~~c. drinks~~

d. drink

Good Luck

Post - Test Longer Measurement

Name : Irena Rizki Nur
Class : 3 A
Date of Test : Senin, 26. Nov. 2024

Choose A, B, C, or D for the best answer!

Translate the questions into English!

1. Roti...
a. Water
☒ b. Bread
c. Man
d. Woman
2. Makan...
a. Drink
b. Girl
c. Man
☒ d. Eat
3. Minum...
☒ a. Drink
b. Girl
c. Man
d. Eat
4. Saya seorang anak perempuan
a. I am a man
☒ b. I am a girl
c. I am a boy
d. I am a woman
5. Dia seorang pria
a. He is a boy
b. She is a woman
☒ c. He is a man
d. She is a girl
6. Pria itu minum air
a. The man drinks milk
b. The boy drinks water
c. The woman drinks water
☒ d. The man drinks water
7. Seorang pria, seorang wanita
☒ a. A man, a woman
b. A girl, a woman
c. A boy, a girl
d. A man, a girl
8. Seorang anak laki-laki
a. A man
b. An apple
c. A girl
☒ d. A boy
9. Saya seorang anak perempuan
a. I am a man
☒ b. I am a girl
c. I am a woman
d. He is a man
10. Anak laki-laki itu makan
☒ a. The man eats
b. The girl drinks
c. The boy eats
d. I eat
11. Dia makan roti
a. She eats an apple
b. She drinks milk
☒ c. She eats bread
d. She drinks water
12. Seorang anak perempuan
a. A man
☒ b. A girl
c. The woman
d. The boy
13. Saya makan
☒ a. I eat
b. You eat
c. She eats
d. We eat
14. Saya minum dan makan
a. I eat and drink
b. I drink and drink
c. I eat and drinks
☒ d. I drink and eat

15. Wanita itu makan sebuah apel

- a. The boy eats bread
- b. The girl eats an apple
- c. The girl eats bread
- ☒ d. The woman eats an apple

16. Dia adalah anak laki-laki itu

- a. I am the girl
- ☒ b. He is the boy
- c. He is a man
- d. I am the woman

17. Dia makan roti dan saya makan sebuah apel

- a. I eat an apple and she eats bread
- b. I drink water and she eats an apple
- ☒ c. She eats bread and I eat an apple
- d. She eats an apple and I eat bread

Translate the questions into Indonesian!

18. Drink...

- ☒ a. Air
- b. Minum
- c. Makan
- d. Dan

19. An apple....

- a. Seorang pria
- ☒ b. Sebuah apel
- c. Seorang wanita
- d. Seorang anak laki-laki

20. Bread....

- a. Air
- b. Wanita
- c. Dia
- ☒ d. Roti

21. He is a man

- ☒ a. Dia seorang pria
- b. Dia seorang anak perempuan
- c. Dia seorang wanita
- d. Dia seorang anak laki-laki

22. I eat bread

- a. Saya makan sebuah apel
- b. Saya makan nasi
- ☒ c. Saya makan roti
- d. Saya makan kue lapis

23. Man and girl

- ☒ a. Anak laki-laki dan anak perempuan
- b. Pria dan anak perempuan
- c. Pria dan wanita
- d. Wanita dan pria

24. I drink water

- a. Dia minum roti
- b. Saya makan air
- c. Saya makan roti
- ☒ d. Saya minum air

25. I eat

- ☒ a. Dia makan
- b. Dia minum
- ☒ c. Saya makan
- d. Saya minum

26. She eats the bread

- ☒ a. Dia makan roti itu
- b. Dia minum air
- c. Dia makan sepotong roti
- d. Dia makan sebuah apel

27. She is a woman

- a. Dia seorang pria
- b. Dia seorang anak perempuan
- ☒ c. Dia seorang wanita
- d. Dia seorang anak laki-laki

28. She eats an apple

- a. Dia makan roti
- ☒ b. Dia makan sebuah apel
- c. Saya makan sebuah apel
- d. Saya minum air

29. The man eats the bread

- ☒ a. Pria itu makan roti itu
- b. Anak perempuan itu makan sebuah apel
- c. Anak laki-laki itu makan sepotong roti
- d. Wanita itu makan sebuah apel

30. A woman drinks water

- a. Seorang wanita minum susu
- ☒ b. Seorang wanita minum air
- c. Seorang pria minum air
- d. Seorang pria makan roti

31. The girl drinks

- a. Pria itu makan
~~X~~ b. Wanita itu minum
 c. Anak laki-laki itu makan
 d. Anak perempuan itu minum
32. I eat bread
 a. Dia makan apel
~~X~~ b. Saya makan roti
 c. Saya minum air
~~X~~ d. Dia makan roti
33. A man, a woman
 a. Seorang wanita, seorang pria
 b. Pria, wanita
~~X~~ c. Seorang pria, seorang wanita
 d. Seorang pria, seorang anak perempuan
34. I am the woman
 a. Saya adalah seorang pria
 b. Saya adalah pria itu
~~X~~ c. Saya adalah wanita itu
 d. Saya adalah seorang anak perempuan

Fill the blank of the questions below!

35. The man ____
~~X~~ a. eat
 b. drinks
 c. drinking
 d. eating
36. I eat ____ apple and she eats bread
~~X~~ a. an
 b. a
 c. I
 d. you
37. ____ am a woman
 a. you
 b. he
~~X~~ c. I
 d. she
38. I eat ____ bread
 Saya makan roti itu
 a. a
 b. an
 c. your
~~X~~ d. the

39. I am a man and she ____ a woman
~~X~~ a. is
 b. am
 c. are
 d. us
40. I am ____ man
 Saya adalah pria itu
 a. an
~~X~~ b. the
 c. a
 d. is
41. I eat an apple and she ____ bread
 a. drinks
~~X~~ b. eat
 c. eats
 d. drink
42. She is a girl and I am ____ boy
 a. an
 b. the
 c. a
~~X~~ d. is
43. I ____ water
 a. drinking
~~X~~ b. drink
 c. eating
 d. drinks
44. The girl ____ bread
 a. eats
 b. drink
~~X~~ c. eat
 d. eating
45. ____ woman eats
 Wanita itu makan
 a. An
~~X~~ b. The
 c. A
 d. Is
46. She ____ an apple
 a. eating
~~X~~ b. eat
 c. eats

d. drink

47. She is ___ girl and I am the boy

~~a~~ an

b. the

c. are

d. am

48. The woman eats ___ apple

a: an

~~b~~ a

c. is

d. are

49. A man and ___

Seorang pria dan sebuah apel

a. the bread

~~b~~ an apple

c. the water

d. a woman

50. ___ and I eat

Saya minum dan saya makan

a. You eat

b. She eats

c. He drinks

~~d~~ I drink

Good Luck

Appendix XII

Documentations



Appendix XIII

Curriculum Vitae

Nama Lengkap	: Lina Mar'atus Sholikhah
Tempat, Tanggal Lahir	: Lumajang, 07 Desember 2000
Jenis Kelamin	: Perempuan
Agama	: Islam
Fakultas	: Tarbiyah dan Ilmu Keguruan
Jurusan	: Tadris Bahasa Inggris
Perguruan Tinggi	: UIN Maulana Malik Ibrahim Malang
Alamat Rumah	: Jl. Ahmad Yani 20 Desa Pulo, Kecamatan Tempeh, Kabupaten Lumajang
No. Hp / Telp	: 085335641427
Alamat Email	: linamaratus2@gmail.com



Riwayat Pendidikan

- | | |
|--------------|----------------------------------|
| 1. 2005-2007 | TK Muslimat NU 01 Pulo |
| 2. 2007-2013 | MI Fajrul Islam 02 Pulo |
| 3. 2013-2016 | MTs Negeri Lumajang |
| 4. 2016-2019 | MAN 01 Jember |
| 5. 2019-2025 | UIN Maulana Malik Ibrahim Malang |

Malang, February 06, 2025

Mahasiswa

Lina Mar'atus Sholikhah