Improving Students' Vocabulary through Android-based English Textbook; An Experimental Study

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Abstract

This study was conducted to determine whether Android-based English textbooks (ABET) could enhance the vocabulary skills of tenth-grade students at MA Miftahul Ulum. This study employed a pre-experimental approach featuring a one-group design that includes pre-tests and post-tests. The population was 30 students, and the sample used saturation sampling. Data was gathered through a multiple-choice test consisting of 45 questions in total. Data was gathered using a pre-test, an ABET treatment session, and a post-test to measure students' vocabulary improvement. This study employed statistical data analysis methods, including descriptive statistics and paired samples t-test, utilizing SPSS software. The results showed that the effect of education on students' vocabulary was statistically significant; the students' mean score in the post-test (73.60) significantly exceeded the pre-test mean (48.26), and the t-test computation yielded a significance value of 0.000. The figure falls below the 0.05 threshold, indicating statistical significance. The results showed that students' attention and vocabulary increased significantly from the Android-based learning media ABET, so it can be an alternative choice to printed materials. This study suggests that the use of digital textbooks should be expanded to prove a more dynamic and accessible EFL educational environment.

Keywords: *Vocabulary mastery, Android based learning, Mobile learning, Digital textbook*

INTRODUCTION

Over time, technological advancements have brought about several advancements in education this day. The transition from traditional tutoring ways to digital textbooks represents a big step forward in education, with the eventuality to enrich the literacy experience through better access to knowledge and visually appealing content (Respati et al., 2024). English teachers have begun to use computer technology to catch students' attention and boost their interest in learning English (Katemba, 2022). Technology-based English learning has become a necessity that must be applied by teachers in the classroom, but the limited use of digital-based English textbooks makes English learning not optimal. This is indicated by several experts that incorporating digital textbooks in education, especially in an academic position, poses a complex set of challenges.

According to Masuudi et al. (2024) state that by using e-textbooks, not all scholars have equal access to particular, profitable factors being a thing. Scholars in regions with limited internet access may struggle to frequently download, stream, or update their digital textbooks on a regular base. Scholars may find themselves in situations where they cannot pierce the textbook. This study also investigates obstacles faced by scholars in espousing e-textbooks. It finds that the lack of digital textbooks limits access to updated educational resources reduces opportunities for interactive learning, and can widen the digital peak among scholars, thereby precluding schools from maximizing their educational potential.

As noted by Ayu Arsari (2022), schools frequently circumscribe the use of digital media in classrooms, therefore limiting scholars' exposure and engagement with these precious learning tools. Restrictions assessed in classrooms, frequently under the guise of maintaining order, inadvertently hamper scholars' capability to completely use the educational benefits of digital media. This restrictive approach can pose a challenge in effectively integrating digital media into learning. Likewise, Dia (2024) argues that there are numerous specific challenges and structural limitations that hinder the incorporation of technology in language classrooms, especially in resource-limited settings. Numerous educators frequently face difficulties in conforming to new digital tools, which can hamper the optimal use of digital coffers in English language learning. Additionally, both educators and students require training and support to build their digital skills in order to effectively navigate and utilize the vast array of available digital tools.

On the other hand, another study on the environment was carried out by Hussain (2024); this study also notes that a lack of digital resources and inadequate schoolteacher training in technology can stymie the effectiveness of English language instruction. The influence of digital textbooks on non-cognitive aspects, such as emotional and social factors that are becoming increasingly significant in contemporary education, has received limited focus. The benefits of online textbooks are widely recognized; however, many individuals are doubtful about their drawbacks, which include challenges such as scholars often getting sidetracked and issues with internet connectivity. Thus, it is crucial for English language educators to enhance their teaching approaches by integrating a diverse array of vocabulary exercises and activities, as well as adopting alternative instructional methods to foster greater student engagement in vocabulary lessons and to improve vocabulary skills (A.S. Patimah, Syafrudin Raharjo, 2024).

Therefore, Muhfiyanti et al. (2021) also imply that learners struggle to grasp English content during the educational experience. The original issue concerns the accouterments employed by the educator. During the literacy process, educators primarily calculate on textbooks and sometimes PowerPoint presentations. This kind of learning model is less intriguing for scholars to learn English. The second issue pertains to students' insufficient motivation to study English. Throughout the educational process, some students may become disinterested in teacher-centered instruction. Furthermore, their proficiency in English was not sufficient. Despite this, numerous English classrooms continue to focus heavily on textbook instruction, resulting in students often learning by memorization with little opportunity to engage with vocabulary in context (Najih et al., 2025). Relying on memorization and textbook learning frequently does not create significant links between vocabulary and its practical use in the real world. Moreover, the lack of interactive and student-focused teaching resources leads to a lack of interest among students and results in a slow and ineffective vocabulary learning process (Novi Rina Dewi & Alfany Fardan Syahuma, 2022).

Digital technology enhances educational practices by boosting teacher effectiveness in helping students achieve their desired learning outcomes (Niswa et al., 2024). Technology in education broadens the variety of learning resources accessible, enhancing the ability of teachers and students to find information and participate in enjoyable educational experiences. The school education system must evolve by incorporating digital technology into the learning experience to address the requirements of contemporary students (Arifah & Muhith, 2025). The use of technology-driven learning tools is vital for improving students' learning experiences, as it helps them understand the content better and reduces their boredom (Mulyadi et al., 2020). Technology-based educational approaches offer the additional benefits of improved portability and wider access for learners, which helps to eliminate the limitations of traditional distance education. Mobile learning, which involves the use of portable devices, embodies essential aspects of modern education by providing constant and easy access. As a result, language education should integrate technological innovations, especially via digital tools for vocabulary learning.

In addition, mobile learning apps that run on Android are available for free and demand only a small amount of storage space on mobile devices (Yulista et al., 2024). The purpose of employing media technology in the classroom is to convey information, impart knowledge, and achieve educational goals for students. When educators incorporate engaging and suitable media into the learning experience, it can enhance students' academic performance. With the ongoing advancement of technology, one of the fastest-growing trends each year is the rise in the adoption of mobile devices running on Android. The widespread use of Android-powered mobile technology continues to grow and is increasingly finding its way into educational settings. As time goes by, students are increasingly drawn to modern techniques rather than conventional ones. Students find it simpler to learn with the aid of media because the students perceive it as more thrilling and engaging (Faurismawan & Mubarok, 2024). Therefore, we can determine that using media is a more effective approach to educating students.

Furthermore, learning through Android platforms allows students and teachers to access and share resources freely (Meladina et al., 2023). The integration of portable electronic devices as learning tools has become common across different levels of education, primarily due to the affordability and easy accessibility of Android devices that facilitate the learning process (Xodabande & Hashemi, 2023). Handayani et al. (2020) reported that incorporating technology-based resources enhances students' happiness and motivation when developing reading skills. Consequently, researchers utilize Android-based English textbooks to enhance students' vocabulary skills, as understanding vocabulary is essential in learning English. Vocabulary in textbooks must be carefully chosen to ensure suitable input (Husna et al., 2025). The availability of these Android textbooks can help address some of the challenges students face due to their limited vocabulary comprehension. A high-quality textbook will facilitate students' acquisition of knowledge and information while also allowing teachers to guide students effectively throughout the learning process (Mubarok et al., 2024).

An Android-based English textbook is utilized as one of the digital tools in this study. Consequently, possessing an extensive vocabulary in the intended language can enhance language proficiency and performance (Fitriah et al., 2023). Proficiency in vocabulary is a crucial component of language acquisition, forming the basis for improving listening, speaking, reading, and writing abilities (Andriani et al., 2025). In short, vocabulary consists of significant words and is crucial for achieving success in learning a language (Zuleha et al., 2025). For students, possessing a strong vocabulary is essential for effectively conveying their ideas, feelings, thoughts,

and desires. Limited vocabulary knowledge can impede learners' capacity to understand spoken language, express their thoughts and opinions, and accurately follow written instructions (Hasram & Kaur Ajaib Singh, 2021). Students need to learn specific vocabulary associated with foreign language learning activities, as insufficient vocabulary mastery can diminish their self-assurance in expressing themselves and engaging in verbal interactions (Aprialiana, 2025). This is because language plays a crucial role in comprehending the meanings of words. Having a wide range of vocabulary enhances the acquisition of English language skills.

According to the explanation provided, this study utilizes an innovative ICT tool, specifically the Android-based English textbook ABET, as a foundation for educational use in teaching and learning vocabulary. The ABET is highly beneficial for enhancing students' English skills, particularly in vocabulary acquisition. By utilizing the ABET during the teaching process, the English teacher can be encouraged to incorporate it into lessons, particularly to enhance students' interest in learning vocabulary in English. ABET provides teachers with an additional method to enhance students' skills in accessing digital books. ABET also allows users to include different forms of content, such as text, images, audio, and videos in the book. Additionally, there are numerous practice questions designed to enhance students' comprehension of each chapter. Students have the flexibility to access the materials whenever and wherever they want, provided they have an internet connection. This study aims to support individuals learning a second language in acquiring the English language in an enjoyable and captivating manner. It is thought that incorporating sounds, images, and videos can engage students in a more enjoyable learning experience (Aisyah & Nuraeni, 2022).

This study concentrated on teaching vocabulary through ABET. Teachers can leverage Android-based media by employing an intelligent app creator to assist students as a learning resource. This will enhance students' involvement in learning, particularly with vocabulary, and the app provides the convenience of being used at any time and from anywhere. Consequently, the aims of this study are:

1. To assess students' vocabulary proficiency through the ABET both before and after the treatment.
2. To evaluate how effectively the ABET enhances vocabulary for students.

Given this situation, it is essential to undertake a development study aimed at creating an Android-based digital tool that will assist students in enhancing their vocabulary skills (Puspitasari et al., 2022). This research aims to provide both theoretical and practical insights for EFL teachers and learners. In theory, this research aims to enhance current theories on vocabulary acquisition through the use of mobile devices. Practically, this research can assist EFL teachers and students in identifying more effective strategies for enhancing their vocabulary, which is a fundamental component of learning a language.

METHODS

Research design

The study employs a quantitative methodology through a pre-experimental design. According to Keskin and Yilmaz (2020), Fong et al. (2020) argue that experimental research is an essential method for evaluating the effectiveness of interventions and determining causal relationships across various domains, including education. The study focused on one class that

underwent the same treatment, specifically the utilization of an Android-based English textbook on student vocabulary learning. The researcher initially administered a pre-test to the groups, followed by the implementation of the treatment. After the treatment ended, a post-test was given to evaluate any progress. To determine the effectiveness of the treatment, the results of the pre-test and post-test were compared (Liando et al., 2023).

This study involved two variables. They represented both the dependent and independent variables. The implementation of ABET served as the independent variable in the study, whereas the students' vocabulary proficiency was measured as the dependent variable. The researcher conducted five meetings in the class to gather data. The initial meeting served as a pre-test. In the second to fourth meetings, the researchers provided assistance with the ABET process, and a post-test was given to the students during the fifth meeting. The pre-test aimed to assess vocabulary understanding prior to the treatment, whereas the post-test was intended to evaluate vocabulary comprehension following the treatment.

Research participants and Sampling Procedures

The population included the subject or object of generalization, characterized by specific qualities and features that were identified to collect data and form conclusions. A sample for research is defined as a subset of the population that includes all of the population's major features. The participants of this study were the students of MA Miftahul Ulum for the academic year 2024/2025. The research sample included one class of 10th-grade students from MA Miftahul Ulum, comprising a total of 30 students. This was achieved through a saturation sampling method, where every member of the population was included as part of the sample.

Instrument

In collecting the data, the researchers administered an assessment to evaluate the vocabulary. The assessment included 45 multiple-choice questions. In the 45 questions, the researcher classifies the questions by dividing them into two vocabulary indicators and their sub-indicators, as shown in Table 1 below.

Table 1. Indicator of Vocabulary Mastery

Indicator	Sub Indicator
1) Vocabulary size	1) Students can identify the meaning of words in context.
	2) Students can recognize synonyms or antonyms.
	3) Students can match words with definitions.
2) Vocabulary depth	1) Students can identify word collocations
	2) Students can use a word in different contexts.
	3) Students can identify word forms (noun, verb, adjective, adverb)

Researchers provided treatment by implementing the Android English Teaching Book in classroom learning activities. The steps of implementing treatment using ABET are first, the researcher asks students to install ABET, then introduces students to the features in ABET, then the researcher provides information on how to use ABET, and after that, students are asked and given a word from ABET to test students' vocabulary. Next, the researcher asked students to form groups of 6 groups. In one group, the researcher asked students to think about tourist attractions and their descriptions; the results of the discussion from each group would be presented to the class; the researcher also asked questions in ABET, which were applied through games about matching words, guessing words, and filling in the blanks.

The treatment was carried out during three meetings, demonstrating that the use of an Android-based English textbook significantly enhanced students' vocabulary acquisition. The three treatments aim to affect the variable by incorporating both practical exercises and evaluation methods, supported by a conceptual framework that aligns with and strengthens the research outcomes (Halbherr & Kapur, 2020). To determine the outcome, the researcher conducted a post-test on the sample. The post-test was administered to acquire the final results for comparison with the pre-test outcomes. The questions presented in the post-test were the same as those used in the pre-test.

Data Analysis

Statistical procedures, including descriptive statistics and paired samples T-test, were employed to conduct the analysis of data (Ikosusilowati & Umar, 2021). The research gathered and organized student performance data in Microsoft Excel spreadsheets and then analyzed this information using SPSS version 23 software to assess the measurement tools' validity and reliability. The analysis confirmed that the instruments met appropriate standards for both validity and reliability measures.

Based on Pearson's correlation test, there are 45 valid questions with an r count that exceeds that of the r table, and the significance level is below 0.05. This indicates that every question is appropriate and can be used for future assessments. The student's response to the Android-based English textbook demonstrated that it successfully met the objectives related to the identified issue. Reliability analysis is applied within the same study, producing steady outcomes. The Alpha formula in SPSS software was used in this study to determine test reliability. If the computed r value exceeds the r table of 0.70, the test is deemed a reliable instrument. Table 2 provides a comprehensive overview of the findings from the reliability test performed in this research.

Table 2. Reliability Analysis

Cronbach's Alpha	N of Items
.747	46

The reliability test results show that r11 is 0.747, while the r table value is 0.361. The conclusion that can be drawn is that 0.747 is greater than 0.361, which suggests that the testing tool is classified as reliable.

RESULTS

The research has been conducted on the tenth-grade students at MA Miftahul Ulum to see if the adoption of an android-based English book may increase students' vocabulary skills. This investigation employed a pre-test and post-test methodology comprising 45 multiple-choice items. The collected data underwent descriptive statistical analysis utilizing SPSS software. The findings of this academic inquiry will be presented in the subsequent sections.

The rate score pre-test and post-test

The data analysis revealed a considerable difference between the pupils' pretest and post-test results. This study commenced with administering a pretest to assess the initial vocabulary skills of the students prior to the treatment. After conducting experiments using Android-based English books, students took a post-test. This test is designed to determine whether students' scores differ from those obtained on the pretest. If the post-test result is higher, it means the pupils' vocabulary skills have increased. To further interpret the results, the scores were classified into five distinct categories. They are presented in Table 3 below.

Table 3. Student scores on pre-test and post-test

No	Classification	Score	Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1.	Excellent	91-100	0	0%	1	3%
2.	Good	76-90	0	0%	12	40%
3.	Fair	61-75	6	20%	15	50%
4.	Less	51-60	4	13%	2	7%
5.	Poor	0-50	20	67%	0	0%
	Total		30	100%	30	100%

Statistical Table 3 clearly demonstrates a considerable variation in the value of one experimental group's pretest and post-test. Starting from the student's post-test scores, there are many students who do not answer correctly, which results in low scores. There is no student who scored well in the category of “good and excellent”; most students scored below 60. The percentage of pretest results is answered into the bottom three categories, namely in 6 (20%) students categorized as fair, 4 (13%) students categorized as less, and the most, namely 20 (67%) students categorized as poor.

This shows that the students possess a limited grasp of vocabulary, particularly when it comes to comprehending words or sentences in English texts. However, to overcome this post-test value, researchers tried to measure students' vocabulary understanding using an android-based English textbook. Researchers prepared a second test, namely the post-test. This test aims to figure out how students' vocabulary improves after they learn it through mobile learning.

After the second test, the results obtained by students' scores increased. The percentage shows that students' scores have greatly improved in the top three categories, although there is 1 in the less category, namely 1 (3%) student in the excellent category, 12 (40%) students in the

good category, 15 (50%) in the fair category and finally 2 (7%) students in the less category. In the poor category 0 (0%), in which previously many students got this score, quite a lot can be overcome. In conclusion, these results show an increase in students from the pretest to the post-test, with a notable difference in percentage scores after conducting a treatment.

The mean score of students between the pre-test and the post-test

Table 4. Student scores on pre-test and post-test

Table 4; Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test	30	31.00	73.00	48.2667	11.80571
Post-test	30	60.00	91.00	73.6000	8.22360
Valid N (listwise)	30				

Based on the descriptive statistics test results above, it is necessary to examine if using an Android English textbook may increase students' vocabulary skills. According to the data, students achieved a minimum score of 31 and a maximum score of 73 in the pre-test. In the post-test, students showed improved scores, ranging from a low of 60 to a high of 91. Furthermore, the average score for the post-test exceeded that of the pre-test, with scores of 73.60 compared to 48.26.

The indicator and sub indicator vocabulary

The findings are derived from the average scores of pre-test and post-test assessments conducted with a sample of 30 students. The assessment was comprised of 45 items, which were categorized into several sub-indicators. Each sub-indicator reflects specific competencies that were evaluated before and after the treatment. The results are visually represented through graphs or charts to illustrate the learning gains across each sub-indicator. This analytical overview showcases the advancements attained by students and offers a straightforward comparison of their starting and concluding achievement levels. The data provides concrete evidence demonstrating the effectiveness of the instructional method used.

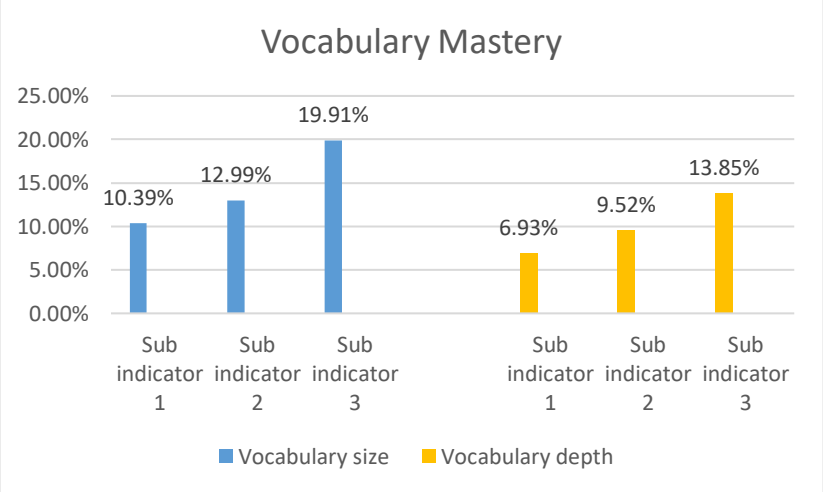

Figure 1: Percentage value of indicators vocabulary

According to the data obtained, the mean score of students after being given treatment is 73.6, which is classified into several sub-indicators. Researchers use a percentage value to determine how far students' vocabulary understanding through multiple-choice questions. The percentage of vocabulary indicators is found in each of the three sub-indicators, starting with the vocabulary size of the first sub-indicator; namely, 10.39% of students can identify the meaning of words in context. The second sub-indicator, namely 12.99% of students, can recognize synonyms or antonyms, and the highest percentage in the third sub-indicator, namely 19.91% of students, can match words with definitions. This shows that students have an understanding of matching the word in a blank word problem or in incomplete listening questions.

Meanwhile, the depth of vocabulary is also divided into three sub-indicators, starting from the first sub-indicator getting the lowest score, namely 6.93% of students can identify word collocations, in the second sub-indicator it has increased slightly. Namely, 95.2% of students can use a word in different contexts, and the highest result in the vocabulary depth sub-indicator reached 13.85. Students can identify word forms (nouns, verbs, adjectives, adverbs). Therefore, the students' perspective concludes that they require advanced learning tools to enhance their educational experience. Android devices and smartphones have a significant impact on education, allowing teachers to utilize them as effective tools for enhancing vocabulary acquisition.

Normality Test

Table 5. Test of Normality

Variable	Sapiro-Wilk		
	Statistic	Df	Sig. (p)
Pre-test	0,907	30	0,013
Post-test	0,969	30	0,507

From the normality test table above, the test was used by Shapiro-Wilk. It can be inferred that the data significance value (p-value) greater than 0.005 indicates that the data is regularly distributed. The pre-test score of 0.013 and the post-test score of 0.507 indicate that the data is normally distributed. To ensure the data follows a normal distribution, the analysis proceeds with a paired sample t-test to assess whether there is a significant difference between the results of the pre-test and post-test. The normal distribution of the scores suggests that the sample accurately reflects the population and that the findings can be generalized with greater confidence (Afita Dewi Prastiwi & Maxima Ari Saktiono, 2023).

Paired Sample T-Test

Table 6. Paired sample t-test

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre-test Post test	-25,33333	14,31742	2,61399	-30,67955	-19,98712	-9,691	29	0,000

The researcher proceeded to assess the research findings for notable differences by utilizing a paired t-test. A paired t-test was used to see if the observed improvement in scores between the pretest and post-test was statistically significant. Table 5 above shows that obtained that the calculated t-test result with df = 29 had a standard deviation of 14.317, a standard error means of 2.613, with the lower pretest post-test difference at -30.679 and the higher at -19.987. The t-table was used to establish the significance level. The t value is -9.691, and the Sig (2-tailed) of 0,000 < 0.05.

This signifies that the alternative hypothesis (Ha) was approved, while the null hypothesis (Ho) was since Sig. (2-tailed) was smaller than the significance level. It can be stated that there is a notable discrepancy in student scores before and after the treatment. For this reason, the use of Android-based English textbooks can improve students' vocabulary skills very significantly.

DISCUSSION

In the modern digital age, integrating technology into education is essential, especially for enhancing language proficiency, such as vocabulary development. An English textbook created for Android offers a dynamic and interactive way for students to improve their vocabulary, going beyond the capabilities of conventional printed resources. An English textbook designed for Android provides a lively and engaging method to help students enhance their vocabulary, surpassing what traditional print materials can offer. Ajisoko (2020) states that the digital textbook serves as an effective tool for learning vocabulary, helping students gain a deeper comprehension of the subject and inspiring them to generate new ideas during their learning process. Digital textbooks can incorporate vocabulary within real-life situations by using stories, conversations, or videos.

The findings from the research suggest that using the ABET can enhance students' vocabulary mastery when utilizing digital textbooks. This aligns with earlier studies that found comparable results regarding the effectiveness of e-textbooks in enhancing students' vocabulary. Nurchintyawati (2022) states that the incorporation of technology has become a crucial aspect of contemporary teaching and learning, providing valuable support to educators in presenting content and inspiring students to engage with lessons more effectively. The information shows that among

30 students, the mean vocabulary mastery score prior to using the app was 48.26, with a standard deviation of 11.80. The lowest score recorded was 31, while the highest was 80. Subsequently, following their use of the app, the students' scores improved significantly. The mean score was 73.60, with a standard deviation of 8.22. The lowest score recorded was 60, while the highest was 91.

Meanwhile, from the graph data regarding vocabulary indicators, which are divided into several sub-indicators, it is found that in 19.91% of vocabulary size, many students can match words with definitions. Besides that, in vocabulary depth, the highest data results are 13.85% of students can identify word forms (nouns, verbs, adjectives, adverbs) in the form of English questions. The results demonstrated a connection between vocabulary size and depth. This aligns with Sukying's (2023) research, which discovered that the depth of vocabulary is a significant predictor of overall writing performance, emphasizing the importance of vocabulary variety and complexity in academic writing. The latest results indicated that both the size and depth of vocabulary were associated with overall performance in written argument as well as with scores in vocabulary components. To help students improve their vocabulary comprehension, educators should strive to develop a diverse range of assessments that evaluate different sizes or depths of vocabulary (Muzaffar, 2024). Nonetheless, students with strong vocabulary depth tend to achieve higher scores in vocabulary size, potentially influencing their vocabulary size as time goes on (Ayu Rahayu et al., 2023).

In addition, the alignment of the android English textbook with students' learning activities may contribute to the effectiveness of students' vocabulary comprehension. Huang (2023), in their research, presents an English learning system based on Android designed to assist students in properly memorizing the vocabulary of English. This system facilitates the transformation of acquired vocabulary into long-term memory by using an effective review procedure, ensuring that it is not easily forgotten. The students' positive attitude towards using online platforms can be attributed to the benefits of the process, such as improved vocabulary retention and opportunities for vocabulary enhancement (A.S. Patimah, Syafrudin Raharjo, 2024). Methods for learning vocabulary that utilizes technology can accelerate the typically lengthy process of mastering academic vocabulary (Zarrati et al., 2024).

Furthermore, the details of the data gathered in the earlier section via the vocabulary test indicate that the participants' English vocabulary has improved. This has been validated by the results and percentages from both the pre-test and post-test. The students' scores in vocabulary learning improved after they received treatment through mobile learning compared to their scores prior to the treatment. This ABET significantly enhances the effectiveness of students' vocabulary acquisition during their learning journey. Likewise, Rizky Setiawan and Wiedarti (2020) argue that utilizing applications in the learning process can enhance vocabulary acquisition more effectively than for those who do not use such tools.

While this study showed a notable enhancement in students' vocabulary skills using an Android-based English textbook (ABET), it is important to recognize several limitations to provide context for the results and inform future research. The study used a one-group pre-test and post-test design without a control group. This limited the capacity to ascribe the noted improvement in vocabulary exclusively to the ABET intervention. External factors like students' engagement with different learning resources, conversations with peers, or the natural progression of language skills during the study period may have impacted the outcomes. Incorporating a control group in future research would allow for a clearer understanding of ABET's specific impact on vocabulary

learning. In terms of sample size, the research involved a relatively small sample of 30 tenth-grade students from one school in MA, Miftahul Ulum. The small sample size limits the ability to apply the findings to larger populations. Future studies should include larger and more diverse groups of students from various schools or regions to see if similar outcomes can be found in different educational settings.

The research exclusively utilized multiple-choice tests to assess vocabulary proficiency, emphasizing recognition overproduction. This method might not entirely reflect students' proficiency in using new vocabulary in real-world communication situations, like speaking or writing activities. Future studies might include productive tasks such as sentence creation, brief writing assignments, and oral presentations to offer a more thorough evaluation of vocabulary depth and utilization. The results indicate that ABET may be an effective resource for enhancing vocabulary teaching in English language classrooms. Educators can incorporate ABET into their everyday lessons by creating activities that merge technology with cooperative learning, including group discussions, role-playing, and projects that are rooted in textbook material. Additionally, the multimedia elements of ABET, such as audio, visuals, and interactive quizzes, can be utilized to accommodate various learning preferences and enhance student involvement. It is advisable for teachers to undergo training on effectively incorporating ABET into their lesson planning and classroom management to enhance its advantages. Furthermore, ABET could serve as an additional resource for homework or self-study, motivating students to expand their vocabulary independently and at their own speed outside of the classroom.

Conversely, mobile learning improves student learning results and provides ample opportunities for direct interaction with teachers. This promotes active and meaningful learning experiences focused on vocabulary while enhancing overall student participation in classroom activities. It is advisable to promote the use of mobile phones or software by teachers in EFL classrooms, given the significance of vocabulary learning and the difficulties students encounter in this area. Utilizing technology encourages students to acquire new words and phrases, thereby enhancing their vocabulary development (Hasan et al., 2022). The students will be engaged and eager since this medium can be easily utilized for online learning, making all course materials readily available on their mobile devices (Yulista et al., 2024). From the student's perspective, the ABET enhances their motivation and ability to comprehend vocabulary accurately, leading to greater success in the classroom. This improvement is largely due to the significant impact of smartphones and Android devices on education. This supports the belief that technology integration must be thorough, providing sufficient resources and training to fully leverage the benefits of educational technology in fostering a diverse and enriching learning atmosphere. Consequently, this research supports earlier discoveries regarding the advantages of digital textbooks in education and emphasizes the need to take into account the elements that can influence the effective integration of this technology.

CONCLUSION

Based on the research that has been conducted, the research findings show that the use of ABET as a learning tool is effective in enhancing vocabulary proficiency among tenth-grade students at MA Miftahul Ulum. Android-based English textbook media can successfully enhance student involvement and participation in the classroom. Indeed, the students stated that utilizing Android-based mobile learning media is fun and very useful for acquiring vocabulary knowledge;

although there are a few students who are limited in the use of cell phones, this can be resolved well. The notable rise in post-test scores indicates that incorporating digital media into education can effectively enhance student engagement and improve learning results. This is evidenced by the score of pre-tests was 48.26 and post-test was 73.60. Furthermore, after being taught through the android-based English textbook in five meetings, there were substantial differences and developments in students' vocabulary mastery. The probability value (0.00) was found to be less than the significance level (0.05). It is recommended to use Android English textbooks as an alternative media for teaching English. To sum up, students responded positively response to this learning media, and many felt inspired and helped in learning with the Android-based mobile learning media. This research also provides recommendations for teachers as a new option in delivering English text materials to students aiming to inspire a greater enthusiasm for learning the language.

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