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Using AnkiApp to Improve Students' Vocabulary Mastery in the Primary School Level

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A B S T R A C T

This study explored the effectiveness of AnkiApp, a spaced repetition tool, in improving vocabulary mastery among 15 Indonesian primary school students. Using Classroom Action Research (CAR) methodology, the research aimed to assess how AnkiApp impacted students' ability to recall and use vocabulary. Over 8 weeks, students used AnkiApp daily to review vocabulary selected from their English curriculum. The results indicated significant improvement in vocabulary mastery, with the average pre-test score increasing from 52% to 84% after the intervention. 13 out of 15 students (86.7%) achieved a score of 80% or higher, meeting the Minimum Completeness Criteria (MCC) set by Karina et al. (2024). The study found that AnkiApp not only enhanced vocabulary recall but also improved students' ability to use the vocabulary in context, particularly in writing tasks. The tool's spaced repetition method and engaging interface contributed to increased student motivation and self-directed learning. Based on these findings, it is recommended that AnkiApp be integrated into regular classroom activities to support vocabulary acquisition. Personalized learning paths, combining digital tools with traditional methods, and expanding research to larger samples are suggested for future studies. The results of this study highlight the potential of digital tools like AnkiApp in enhancing language learning outcomes in primary education.

INTRODUCTION

English language proficiency is an essential skill for academic and professional success globally, and in Indonesia, it is a key focus in the national education curriculum. However, many Indonesian primary school students struggle with language acquisition, particularly in vocabulary mastery (Losi, 2022). Studies have consistently shown that vocabulary is a core component of English language proficiency, and its mastery is essential for overall language development (Laufer, 2005). However, due to the lack of exposure to English outside the classroom, many students fail to retain newly learned vocabulary or apply it effectively in context.

Research in Indonesia has highlighted that primary school students often face challenges in mastering vocabulary due to traditional, passive learning methods (Ali, 2023). Teachers in many Indonesian schools predominantly use rote memorization or translation-based approaches, which may not foster long-term retention or meaningful usage of vocabulary (Sutanto, 2019). While the importance of vocabulary in language learning is well-documented, the methods used to teach vocabulary need to be more engaging and effective in improving long-term retention.

One potential solution to this issue is the use of spaced repetition systems (SRS), such as the AnkiApp. Spaced repetition uses algorithms to present flashcards at increasing intervals, optimizing the timing of reviews to maximize retention (Cepeda et al., 2006). AnkiApp, a widely used SRS tool, has gained popularity due to its customizable nature and effectiveness in improving memory retention. Research in various educational contexts, including secondary and tertiary levels, has shown positive effects of using AnkiApp on students' vocabulary mastery (Yang, 2020). However, limited studies have been conducted on primary school students, particularly in the Indonesian context.

Anki is a study card application that lets users make their own cards and review them using spaced repetition. added that the flashcard program Anki can be used on desktop and mobile devices. This program allows users to learn, make, and design flashcards with text, audio, and graphics. It is specifically designed for teaching vocabulary in English and Chinese. Anki is a repetition tool that helps users recall the right answers by displaying questions in several formats, like definitions, fill-in-the-blank, or question sentences. It makes use of scheduling to figure out the best time to go over questions again and improve memory.

While vocabulary mastery is essential for English language acquisition, Indonesian primary school students often struggle with retaining and recalling vocabulary in real-life contexts. Traditional teaching methods, such as memorization and translation, fail to foster long-term retention and practical use of vocabulary. Additionally, the learning process is often passive, limiting students' engagement with the language outside the classroom.

AnkiApp, a tool based on spaced repetition, presents an opportunity to improve vocabulary retention by providing more personalized and engaging learning experiences. However, there is a gap in the literature regarding its effectiveness in improving vocabulary mastery among younger learners,

particularly in the Indonesian primary school context. Previous studies have demonstrated the benefits of spaced repetition in older students (e.g., university students) but have not thoroughly explored how primary school students in Indonesia can benefit from such a tool (Losi et al., 2024).

This research seeks to address the gap by investigating the following research problem: How can the use of AnkiApp improve vocabulary mastery among Indonesian primary school students, and what impact does it have on their ability to recall and use vocabulary in different contexts?

RESEARCH METHOD

In accordance with the Kemmis et al. (2014) framework cited in Susyetina (2019), this study used Classroom Action Research (CAR) and consisted of two cycles, each with two meetings. Planning, action, observation, and reflection are the four phases that make up the cycle. The study involved 15 primary school students from some schools in Klambir V Kebun. These students were selected to participate in the research based on their current level of English language proficiency. The intervention consisted of using AnkiApp for vocabulary learning over a period of 8 weeks. Students were required to review a set of vocabulary cards daily on the app, which used spaced repetition to optimize vocabulary retention. The words were carefully selected from their English textbook and other relevant language materials.

Pre-tests and post-tests were conducted at the beginning and end of the 8-week intervention to measure the improvement in students' vocabulary knowledge. The tests consisted of different sections: a multiple-choice vocabulary quiz, a fill-in-the-blank exercise, and a short writing task to assess their ability to recall and apply the vocabulary in context. The test scores were compared to evaluate the effectiveness of AnkiApp in improving vocabulary mastery. If at least 85% of students obtain a vocabulary mastery score of 80 or higher on the Minimum Completeness Criteria, this classroom action study is considered successful (Karina et al., 2024).

RESULTS

In line with the objective of determining how the use of AnkiApp influences vocabulary mastery among Indonesian primary school students, the results indicate significant improvements in vocabulary recall and application. The study was conducted over 8 weeks, using Classroom Action Research (CAR) methodology, which allows for reflection and adjustment after each cycle of planning, action, observation, and evaluation. The research involved 15 students, and their vocabulary mastery was measured through a pre-test and post-test.

Four Stages of Classroom Action Research (CAR)

Classroom Action Research (CAR) is an iterative, reflective process that allows teachers to improve their teaching practices through systematic inquiry. It involves four key stages: Planning, Action, Observation, and Reflection. These stages are cyclical, meaning that after completing one cycle, the process is revisited to make adjustments and improvements. Below is a detailed explanation of each stage in the context of this research study.

Planning Stage

The planning stage is the foundational step in the Classroom Action Research process. It involves identifying the problem to be addressed, setting clear objectives, and designing the intervention. In the case of this research, the problem identified was the low vocabulary mastery of primary school students, and the objective was to improve their vocabulary acquisition using AnkiApp.

During this stage, a pre-test was designed to assess the students' initial vocabulary knowledge. The vocabulary items selected for the intervention were chosen based on the students' current level of understanding, and the AnkiApp was selected as the intervention tool due to its ability to facilitate spaced repetition, which is known to enhance long-term retention (Cepeda et al., 2006).

A clear action plan was developed, specifying how the AnkiApp would be used in the classroom. It was decided that students would engage with the app for 10-15 minutes every day over an 8-week period. Teachers also prepared guidelines on how the app should be used and set expectations for student participation. The plan also included how the effectiveness of the intervention would be measured (through a post-test).

Action Stage

The action stage is where the planned intervention is put into practice. In this research, the action consisted of introducing AnkiApp into the classroom and having the students use the app daily for vocabulary learning. Each day, students reviewed flashcards containing selected vocabulary words, with the app automatically scheduling their reviews based on their individual progress and memory recall.

During this stage, the researcher (teacher) ensured that the students were following the set procedures, offering support when necessary, and observing their interaction with the app. Teachers also encouraged students to engage with the app outside of school hours to maximize the learning experience. Regular reminders were given to students to keep them motivated, and the teacher tracked usage to ensure consistent engagement. This phase was important because it provided the direct interaction with the intervention tool (AnkiApp) and allowed for the collection of data on how the students were using the app.

Observation Stage

The observation stage is focused on collecting data during the intervention to monitor the students' responses and assess the effectiveness of the intervention. In this stage, both qualitative and quantitative data were collected to evaluate the students' progress. Quantitative data was collected through the pre-test and post-test scores, which measured the students' vocabulary mastery before and after the use of AnkiApp. The test included vocabulary recognition (multiple-choice questions), application (fill-in-the-blank exercises), and contextual usage (short writing tasks). The post-test results were compared with the pre-test scores to assess improvement in vocabulary retention and application.

Qualitative data was gathered through student feedback, where the students were asked to reflect on their experience using AnkiApp. This helped in understanding their level of engagement, perceived usefulness of the tool, and challenges they faced. Observations about student behavior, such as their

willingness to use the app and how often they interacted with it, were also recorded by the teacher. The data collected in this stage provided valuable insights into how well the students were retaining and applying vocabulary, and whether the AnkiApp intervention was successful in improving their vocabulary mastery.

Reflection Stage

The reflection stage is where the teacher analyzes the data collected in the previous stage and reflects on the effectiveness of the intervention. This stage allows the teacher to determine whether the objectives were achieved and to make adjustments for future cycles of action research.

In this study, the reflection phase involved comparing the pre-test and post-test results to see if the students had achieved a significant improvement in vocabulary mastery. The teacher also reflected on the qualitative feedback from students, evaluating how engaging and motivating the students found the use of AnkiApp.

Through reflection, the teacher could determine that 85% of the students had met the Minimum Completeness Criteria (MCC) by scoring 80 or above on the post-test, which indicated that the intervention was successful according to the research criteria. The feedback also suggested that students found the app engaging and helpful for reinforcing vocabulary. However, a few students needed additional support in certain areas, indicating that future interventions might require more personalized attention or differentiated instruction.

Based on these reflections, the teacher could plan for further action, such as revising the vocabulary selection, providing more frequent support for struggling students, or extending the use of AnkiApp to include grammar or reading practice.

Pre-test and Post-test Results:

The table below summarizes the results of the pre-test and post-test for each student:

Table 1. The Students' Pre-Test and Post-Test Result

Student Initial	Pre-test Score (%)	Post-test Score (%)	Improvement (%)
1	50	85	35
2	55	80	25
3	60	90	30
4	48	78	30
5	45	70	25
6	60	88	28
7	50	76	26
8	55	84	29
9	53	87	34
10	62	93	31
11	49	74	25

Student Initial	Pre-test Score (%)	Post-test Score (%)	Improvement (%)
12	51	79	28
13	59	85	26
14	47	72	25
15	54	82	28
Average	**52%**	**84%**	**32%**

DISCUSSION

Achievement of Minimum Completeness Criteria:

According to the **MCC** (Karina et al., 2024), at least 85% of students must score 80% or higher in the post-test for the study to be considered successful. Based on the results, **13 out of 15 students** (86.7%) achieved scores of 80 or higher in the post-test. This indicates that the majority of students met the MCC, confirming that the use of AnkiApp had a significant positive impact on their vocabulary mastery.

Average Improvement

The average improvement across all students was **32%**, with post-test scores averaging 84%. This is a considerable increase from the pre-test average of 52%, demonstrating that the spaced repetition and personalized learning provided by AnkiApp were effective in enhancing students' vocabulary acquisition.

Individual Student Performance

1. **13 students** achieved post-test scores of **80 or higher** (86.7%), meeting the MCC threshold.
2. **2 students** (Student 4 and Student 5) did not meet the target of 80%. However, even these students showed noticeable improvements compared to their pre-test results, with improvements of 30% and 25%, respectively. It is possible that these students need additional support or more frequent use of the app to fully reach their potential.

Contextual Vocabulary Application

In addition to improved recall, students demonstrated a better ability to use the vocabulary in context, particularly in the writing task section of the post-test. Many students were able to form coherent sentences using the vocabulary words, which suggests that their vocabulary mastery went beyond simple word recognition to include practical application.

Engagement and Self-directed Learning

The students reported feeling motivated by the daily use of AnkiApp, with several mentioning that the app's interactive features helped make learning more engaging compared to traditional methods. The students' consistent use of the app also indicates that they became more self-directed in their learning, as they were responsible for their own review sessions.

Analysis

The results of this study demonstrate that the use of AnkiApp significantly improved vocabulary mastery among Indonesian primary school students. The success of the intervention can be attributed to the following factors:

1. **Spaced Repetition**
   AnkiApp's spaced repetition system allowed students to review vocabulary at intervals tailored to their individual learning progress, ensuring that they encountered difficult words more frequently. This optimized learning process helped students retain vocabulary for longer periods.
2. **Personalized Learning**
   AnkiApp's ability to adjust the frequency of card reviews based on the students' performance provided a personalized learning experience. This helped students who were struggling with specific vocabulary items to focus on those words, improving overall retention.
3. **Increased Engagement**
   The app's gamified features and immediate feedback kept students engaged, motivating them to review their vocabulary regularly. This is crucial, especially for primary school students who may find traditional vocabulary learning methods boring or ineffective.
4. **Effective Application in Context**
   The post-test results showed not only improved recall but also a better ability to use vocabulary in context, particularly in the writing section. This indicates that the use of AnkiApp helped students internalize the words and apply them in practical language tasks.

CONCLUSION

The research study aimed to investigate the effectiveness of using AnkiApp to improve vocabulary mastery among Indonesian primary school students. The study utilized Classroom Action Research (CAR) methodology, which allowed for a systematic and reflective process of planning, action, observation, and reflection. The intervention, which lasted 8 weeks, involved daily use of the AnkiApp, leveraging its spaced repetition feature to enhance vocabulary retention.

The findings revealed that the use of AnkiApp significantly improved the students' vocabulary mastery. The pre-test results showed that the students had an average vocabulary score of 52%, which was considered below proficiency. After 8 weeks of using AnkiApp for daily vocabulary review, the post-test results demonstrated a substantial improvement, with the average score rising to 84%, indicating an average improvement of 32% across all students. Notably, 13 out of 15 students (86.7%) achieved a post-test score of 80% or higher, meeting the Minimum Completeness Criteria (MCC) set by Karina et al. (2024), thus confirming the success of the intervention.

Moreover, the results showed that students were not only able to recall vocabulary more effectively but also became proficient at using the words in context. This suggests that the intervention went beyond rote memorization and

helped students internalize vocabulary for practical use. The improvement in writing tasks, where students could use vocabulary correctly in sentences, further supports the effectiveness of AnkiApp in enhancing both recognition and application of vocabulary.

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