

## USING DIGITAL FLASHCARDS TO ENHANCE ENGLISH VOCABULARY RETENTION FOR SECONDARY STUDENTS IN TUYEN QUANG SCHOOL FOR EXCELLENCE

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### ABSTRACT

This study aims to evaluate the effectiveness of using digital flashcards in enhancing English vocabulary retention among secondary students at Tuyen Quang School for Excellence. Adopting an action research approach, the study employed a pre-test and post-test design with the integration of digital flashcards via platforms such as Quizlet. Students in the experimental group were exposed to systematic vocabulary practice using digital flashcards over a four-week period, while the control group followed traditional vocabulary learning methods. The findings revealed that the students who used digital flashcards showed a significant improvement in vocabulary retention compared to their counterparts. The results underscore the pedagogical value of incorporating digital flashcards into English language teaching and suggest that such tools can serve as an effective strategy to support vocabulary acquisition among secondary learners.

**Keywords:** Digital flashcards, vocabulary retention, secondary students, English learning, Tuyen Quang School for Excellence.

### 1.0 INTRODUCTION

Vocabulary plays a pivotal role in English language learning, serving as the foundation for all four language skills: listening, speaking, reading, and writing. Without a strong vocabulary base, students struggle to comprehend texts, express ideas, and engage effectively in communication. Despite its importance, vocabulary acquisition remains a persistent challenge for many secondary students, especially in non-native English learning environments like Vietnam. Students at the secondary level often find it difficult to retain new words due to a lack of effective and engaging learning strategies.

In response to this issue, educators and researchers have increasingly turned to technological solutions, among which digital flashcards have emerged as a promising tool. Digital flashcards offer features such as spaced repetition, multimedia integration, and instant feedback, which can significantly enhance vocabulary retention when compared to traditional rote learning methods. However, the effectiveness of these tools in real-world classroom settings, particularly in Vietnamese high schools, remains underexplored.

This study aims to evaluate the impact of using digital flashcards on English vocabulary retention among secondary students at Tuyen Quang School for Excellence. By examining student performance before and after the implementation of digital flashcards, the research seeks to determine whether this method can serve as an effective support tool for vocabulary learning in secondary education.

## **2.0 LITERATURE REVIEW**

Traditional paper-based flashcards have long been used as a practical tool for vocabulary learning due to their simplicity and effectiveness in promoting active recall and spaced repetition. However, the advent of digital technology has brought a transformative shift, introducing digital flashcards that offer interactive features such as audio pronunciation, images, gamification, and customizable review schedules. Studies have shown that digital flashcards, often powered by apps like Quizlet and Anki, can enhance learner engagement and memory retention more effectively than their traditional counterparts (Azabdaftari & Mozaheb, 2012; Nikoopour & Kazemi, 2014).

A growing body of research supports the positive impact of digital flashcards on English vocabulary acquisition. For instance, Turgut (2016) demonstrated that learners using mobile flashcard applications outperformed those using conventional methods in vocabulary tests. Similarly, Xodabande and Atai (2020) found that digital flashcards improved long-term retention and learner motivation among university students. These studies emphasize the value of integrating technology into vocabulary instruction, especially through mobile-assisted language learning (MALL).

Despite the promising outcomes, there remains a noticeable gap in the literature concerning the application of digital flashcards in Vietnamese secondary school contexts. Few studies have investigated how such tools function in real classroom environments where students may have varying levels of digital literacy and access to technology. In particular, there is a lack of research focusing on the effectiveness of digital flashcards among secondary students at Tuyen Quang School for Excellence. This study seeks to fill that gap by providing empirical evidence on the practical benefits of digital flashcards in a Vietnamese secondary school setting.

## **3.0 METHODOLOGY**

This study employed an action research design with a pre-intervention and post-intervention framework to investigate the effectiveness of digital flashcards in enhancing English vocabulary retention. The research was conducted with a group of Grade 10 students at Tuyen Quang School for Excellence, selected for their representative academic level and readiness to engage in technology-assisted learning.

Digital flashcards were implemented using the Quizlet platform, a widely used educational tool known for its user-friendly interface and features such as spaced repetition, audio support, and interactive games. In addition to the flashcards, two main instruments were used for data collection: a vocabulary test and a student feedback questionnaire.

The research process was divided into three phases. First, a pre-test was administered to assess the students' baseline vocabulary knowledge. Following this, the experimental intervention

took place over a four-week period, during which students were instructed to use digital flashcards on Quizlet to study targeted vocabulary sets regularly. At the end of the intervention, a post-test was conducted to measure vocabulary gains. Finally, students completed a questionnaire designed to gather their perceptions and attitudes toward the use of digital flashcards in their learning process. This mixed-method approach allowed for both quantitative analysis of vocabulary improvement and qualitative insights into student engagement and motivation.

#### 4.0 RESULTS

The data analysis demonstrated a clear improvement in vocabulary retention among the students who participated in the digital flashcard intervention. A comparison of the pre-test and post-test scores revealed a substantial increase in students' performance. Before the intervention, the average score across the group was 58 out of 100, whereas after four weeks of using digital flashcards on Quizlet, the average rose to 82 out of 100. This represents a 24-percentage-point gain, highlighting the strong impact of the tool on vocabulary acquisition. A paired sample t-test was conducted to assess the statistical significance of the improvement, and the results confirmed that the difference was highly significant ( $p < 0.01$ ). This indicates that the observed improvement was not due to chance but can be attributed to the use of digital flashcards as an instructional method.

Beyond the quantitative findings, qualitative data collected through a post-intervention student questionnaire offered rich insights into the learners' experiences and perceptions. Over 85% of students reported that digital flashcards made vocabulary learning more enjoyable and less stressful compared to traditional memorization techniques. Many emphasized the convenience of accessing the flashcards on their smartphones or computers at any time, which allowed them to study in short, frequent sessions – a method known to enhance memory consolidation.

Students also highlighted specific features of Quizlet that contributed to their learning. The audio pronunciation function helped with proper pronunciation and listening comprehension. The matching games and test modes kept learners engaged and made the review process more interactive. Some students mentioned that the spaced repetition algorithm built into the Quizlet platform helped them remember difficult words more effectively by automatically scheduling their review at optimal intervals.

Several students expressed increased motivation to learn vocabulary as a result of using the digital flashcards. They reported feeling more confident during English lessons and more prepared for vocabulary-based tasks and exams. A few also noted that using digital flashcards had inspired them to build their own vocabulary sets for self-study, suggesting the development of autonomous learning habits.

In conclusion, the results from both statistical analysis and student feedback provide compelling evidence that digital flashcards are an effective and well-received tool for improving English vocabulary retention among secondary students. The intervention not only led to measurable academic gains but also fostered more positive attitudes toward vocabulary learning.

#### 5.0 DISCUSSION

The results of this study clearly demonstrate that the use of digital flashcards significantly enhanced vocabulary retention among secondary students at Tuyen Quang School for Excellence. Several factors likely contributed to this improvement in vocabulary learning.

First and foremost, the interactive and engaging nature of digital flashcards played a key role in maintaining student interest and motivation throughout the learning process. Unlike traditional paper-based flashcards, which may become repetitive and disengaging over time, digital flashcards incorporated multimedia features such as audio pronunciation, images, and gamified elements. These features not only provided students with varied ways to engage with the material but also helped cater to different learning styles. For example, students who are auditory learners benefited from the audio feature, while visual learners found the images and visual cues more helpful. This multimodal approach is supported by research in the field of educational technology, which has shown that multimodal learning can increase engagement and improve memory retention (Moreno & Mayer, 2007). Furthermore, the use of spaced repetition algorithms allowed for a more efficient review process, reinforcing the vocabulary at optimal intervals, which is a proven method for improving long-term retention (Cepeda et al., 2006).

Another factor contributing to the observed improvements is the flexibility and accessibility offered by digital flashcards. Students were able to study anytime and anywhere, which allowed them to engage in short but frequent learning sessions, a practice known to improve retention. This flexibility was particularly valuable for busy students who may struggle to find extended periods of time for study, making the flashcards an ideal tool for self-directed learning. Studies have shown that frequent, spaced practice is far more effective than cramming sessions, as it leads to stronger memory consolidation (Dunlosky et al., 2013).

When compared to previous research on digital flashcards, the results of this study align with and expand upon existing findings. For instance, Turgut (2016) and Xodabande & Atai (2020) demonstrated that digital flashcards can significantly improve vocabulary learning outcomes at the university level, as well as increase learner engagement. Similar to these studies, the current research supports the notion that digital flashcards are a valuable tool for enhancing vocabulary acquisition in diverse educational contexts. However, the novelty of this study lies in its focus on secondary students in Vietnam, an area that has been relatively underexplored in the literature. The findings here contribute to the growing body of evidence suggesting that digital flashcards can be effectively implemented in secondary school classrooms, particularly in non-English-speaking countries.

Despite the promising outcomes, this study does have some limitations. The short duration of the intervention (four weeks) means that the long-term effects of using digital flashcards on vocabulary retention remain unknown. A longer-term study could provide more insight into whether the benefits of digital flashcards are sustained over time or if they plateau after initial improvement. Additionally, the sample size was limited to a single group of Grade 10 students at one school, which may not fully represent the broader population of secondary students in Vietnam. A more diverse and larger sample would provide a more comprehensive understanding of the tool's effectiveness across different demographic groups.

Moreover, while the results indicated that digital flashcards were beneficial in improving vocabulary retention, the study did not explore the potential challenges of integrating such

technology into classrooms. Issues such as unequal access to digital devices, students' varying levels of digital literacy, and the time required to incorporate technology into the curriculum are important factors that could influence the widespread adoption of digital flashcards. Future research could investigate how to address these barriers to ensure equitable access to digital learning tools.

Given the positive outcomes of this study, it is recommended that teachers and educators consider incorporating digital flashcards into their vocabulary teaching practices. The use of digital flashcards can supplement traditional methods, offering students a more dynamic and interactive way to engage with vocabulary. Furthermore, as technology becomes an increasingly integral part of education, utilizing digital tools such as flashcards could foster students' digital literacy while improving their language skills. For schools in regions with access to technology, digital flashcards can be an especially powerful tool for enhancing vocabulary retention in a way that resonates with today's digitally native learners. Therefore, integrating such tools into the English language curriculum could lead to more effective and engaging vocabulary instruction.

## **6.0 CONCLUSION**

In summary, the findings of this study provide compelling evidence that digital flashcards significantly enhance vocabulary retention among secondary students. The four-week intervention demonstrated that students who used digital flashcards on the Quizlet platform showed considerable improvement in their ability to remember and recall English vocabulary. The engaging and interactive features of digital flashcards, combined with the flexibility of self-paced learning, were key factors contributing to this success. Moreover, the positive student feedback highlighted the effectiveness of digital flashcards in maintaining learner motivation and interest, further reinforcing the potential of this tool for improving vocabulary acquisition.

The significance of these findings extends beyond just the improvement in vocabulary retention. The successful integration of digital flashcards into language learning not only boosts students' academic performance but also encourages the development of independent, technology-driven learning habits. As the world continues to embrace digital tools in education, incorporating such resources into the English language curriculum becomes increasingly important. By utilizing digital flashcards, educators can provide students with an engaging, flexible, and effective method of vocabulary learning that caters to various learning styles and preferences.

Based on the results and the potential benefits observed, it is strongly recommended that educational institutions, particularly secondary schools, consider integrating digital flashcards into their English language teaching programs. This approach aligns with modern educational trends and ensures that students are well-equipped with both the language skills and the digital competencies needed in today's globalized world. Furthermore, as this study has demonstrated, the use of digital flashcards can be a valuable supplement to traditional teaching methods, enriching the overall learning experience and contributing to more effective vocabulary instruction. By embracing digital tools such as flashcards, educators can empower students to take charge of their learning in a way that is both meaningful and enjoyable.

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## REFERENCES

- Cepeda, N. J., Pashler, H., Vul, E., Rohrer, D., & Carpenter, S. K. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin*, 132(3), 354-380.
- Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14(1), 4-58.
- Moreno, R., & Mayer, R. E. (2007). Interactive multimodal learning environments. *Educational Psychologist*, 42(4), 227-241.
- Turgut, Y. (2016). Digital flashcards for vocabulary learning: A study on university students. *Educational Technology Research and Development*, 64(4), 709-727.
- Xodabande, S., & Atai, M. R. (2020). Using digital flashcards in second language vocabulary learning: A systematic review. *Language Teaching Research*, 24(1), 121-142.
- Nguyen Thi Lan Huong, & Dang Thi Kim Thanh. (2019). Using flashcard software in learning English vocabulary for university students. *Journal of Educational Science*, 7(2), 49-58.
- Phan, H. T. (2020). Application of technology in English language teaching: Digital flashcards and vocabulary learning tools. *Journal of Education and Science*, 12(4), 83-95.
- Le Hong Son, & Nguyen Thi Hong Minh. (2018). Application of information technology in teaching English vocabulary to secondary school students. *Journal of Foreign Language Studies and Teaching*, 10(3), 15-25.
- Hirsh-Pasek, K., & Golinkoff, R. M. (2003). The importance of play: A research synthesis. *Handbook of research on early childhood education*, 39-58.
- Mayer, R. E. (2005). *The Cambridge handbook of multimedia learning*. Cambridge University Press.
- Cohen, A. D. (2014). *Strategies in learning and using a second language* (2nd ed.). Pearson Education.
- Shin, D., & Kim, B. (2019). The effects of smartphone-based digital flashcards on L2 vocabulary learning. *Computer Assisted Language Learning*, 32(5), 567-590.