

Using Read - Aloud Digital Flashcard to Improve Word Recognition Skills of Grade Three Pupils

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ABSTRACT

This study investigated the effectiveness of "Read - Aloud" digital flashcards in improving word recognition among grade three pupils. Using a pretest-posttest design, the intervention transformed traditional flashcards into an interactive digital format with audio support to enhance reading performance. Twenty - five grade three pupils participated in pre-reading and post-reading assessments to measure word recognition before and after the intervention. Data were analyzed using descriptive statistics (percentages, frequency, means, standard deviations) and a paired sample t-test to determine significant differences. Pre-reading performance was low ($M = 8.04$, $SD = 4.609$, $SE = 0.904$). Post-reading performance showed a 95% improvement, reaching an excellent level with a substantially higher mean. The paired sample t-test confirmed a statistically significant increase in word recognition scores ($p < 0.05$). These findings indicate that "Read - Aloud" digital flashcards effectively enhance word recognition and overall reading performance in early elementary learners. Educators are recommended to integrate such audio-supported digital tools into literacy instruction to support struggling readers and promote engaging, technology-assisted learning.

Keywords: digital flashcards, elementary pupils, pretest-posttest design, read-aloud, reading intervention, technology-enhanced learning, word recognition

INTRODUCTION

Word recognition is a foundational skill in early literacy development. It enables young learners to decode words accurately and efficiently, which is essential for comprehension and overall reading proficiency (Tuncay & Dedeoglu, 2019). Language instruction specialists widely regard effective word recognition as a critical component of successful reading acquisition.

Flashcards have long been recognized as an effective tool for teaching vocabulary and improving word recognition (Rahma, 2021). Research indicates that enhanced word recognition accuracy supports faster reading speed and better comprehension (Karageorgos et al., 2020). The early elementary years, particularly kindergarten through grade three, represent a critical window for developing this skill, as progress in oral reading fluency during this period often predicts

improvements in overall reading ability (Neuman & Wright, 2014).

Technological advancements have evolved traditional flashcards into digital formats, incorporating spaced repetition, adjustable pacing, multimedia (images, audio), and self-testing. These features provide auditory support for pronunciation, making them more interactive and engaging than paper versions (Pham et al., 2016).

Digital flashcards sustain attention longer, encourage repeated practice, and improve word recognition strategies (Kerdmuenwai, 2018). They offer accessibility, convenience, and entertainment, with effectiveness depending on image quality and learner age (Alnajjar & Brick, 2017). Pupils often prefer them over paper flashcards for efficacy and fun (Yuksel et al., 2020).

Post-pandemic disruptions, such as those observed in Philippine schools, have intensified challenges in recognizing unfamiliar English words among grade three pupils. Multisensory interventions—combining visual, auditory, and interactive elements—are vital for rebuilding automaticity and addressing reading difficulties linked to decoding and attention issues (Nicolielo-Carrilho et al., 2018; Fitriani et al., 2021).

The COVID-19 pandemic severely disrupted learning and contributed to declines in literacy skills

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among many students. Diagnostic assessments showed that grade three pupils at Doña Martina F. Ganan Memorial School in Barangay Mabini and Gemeniano Galicia Sr. Memorial School in Barangay Doña Trinidad, both in San Andres, Romblon, struggled significantly with recognizing English words, especially unfamiliar vocabulary.

Traditional flashcards, while valuable, often rely solely on visual prompts and lack auditory reinforcement for pronunciation. This limitation can reduce engagement and effectiveness, particularly for struggling readers recovering from pandemic-related learning losses. Existing methods may not sufficiently address the need for interactive, multisensory tools that provide paced repetition and immediate audio feedback. To bridge this gap, the researchers developed the Read-Aloud digital flashcard intervention. Unlike conventional flashcards, this digital tool incorporates audio support, allowing pupils to hear accurate pronunciations while viewing words on a screen. It transforms traditional materials into an engaging, technology-enhanced resource that promotes better-paced practice and multisensory learning (Pham et al., 2016).

This study aligns with DepEd Order No. 31, s. 2022, which adopts the Rights-Based Education (RBE) Framework in Philippine Basic Education. The policy emphasizes children's rights to quality, child-centered education, including access to effective reading strategies that respect, protect, and promote their holistic development.

Therefore, this study aims to determine the effectiveness of Read Aloud Digital Flashcards in improving the word recognition skills of grade three pupils at Doña Martina F. Ganan Memorial School in Barangay Mabini and Gemeniano Galicia Sr. Memorial School in Barangay Doña Trinidad, both located in San Andres, Romblon.

Synthesized Review of Related Literature and Studies

Word recognition is widely recognized as a foundational skill in learning English, particularly in the primary grades, where reading fluency and comprehension rapidly develop. Young learners often struggle with automatic word recognition when instructional strategies do not align with their developmental needs (Tuncay & Dedeoglu, 2019). Early intervention is therefore essential, as the most rapid development in word recognition occurs from kindergarten to Grade 3 (Neuman & Wright, 2014).

Flashcards have long been identified as an effective tool for strengthening vocabulary and word recognition because they promote repeated exposure and retrieval practice. Studies indicate that flashcard drills improve reading fluency and sight word mastery

(Fasko & Fasko, 2010), while structured flashcard use enhances retention and recall (Cihon et al., 2012). Furthermore, flashcards allow learners to focus simultaneously on word form and meaning, making them efficient tools for vocabulary acquisition (Komachali & Khodareza, 2012; Rahma, 2021).

Empirical studies consistently demonstrate the effectiveness of flashcards in improving vocabulary achievement and word recognition skills. Classroom-based research revealed significant gains in vocabulary mastery after systematic flashcard implementation (Tomas et al., 2021). The cognitive principle underlying flashcard effectiveness is retrieval practice and spaced repetition, both identified as highly efficient learning strategies (Dunlosky et al., 2013; Pham et al., 2016).

With advancements in educational technology, traditional paper flashcards have evolved into digital formats that enhance engagement and accessibility. Digital flashcards allow flexible pacing, spaced repetition, and interactive features that sustain learners' attention longer than print-based tools (Pham et al., 2016; Yuksel et al., 2020). Platforms such as Quizlet have been shown to positively influence vocabulary retention and learner motivation (Sanosi, 2018; Toy & Büyükkarci, 2019).

Research further indicates that students generally perceive digital flashcards as convenient, accessible, and engaging learning tools (Azabdaftari & Mozaheb, 2012; Romrell et al., 2014). Whether in traditional or digital form, flashcards remain an effective instructional strategy for enhancing word recognition and supporting literacy development in early elementary learners.

This study aimed to determine the effectiveness of Read-Aloud digital flashcards in improving word recognition skills among Grade 3 pupils. Specifically, it sought to analyze the diagnostic test results on pupils' academic performance in word recognition and to assess their pre-reading scores prior to the intervention.

METHOD

Research Design

This study employed a quasi-experimental research design, specifically a non-equivalent one-group pretest–posttest design, to determine the effectiveness of the Read-Aloud Digital Flashcard in improving the word recognition skills of Grade Three pupils.

The design followed the structure:

$$O_1 - X - O_2$$

Where:

O_1 = Pretest (Pre-reading assessment)

X = Intervention (Read-Aloud Digital Flashcard)

O_2 = Posttest (Post-reading assessment)

Table 1. Population and participants of the study

School	Male	Female	Total	Percentage
Doña Martina F. Ganan Memorial School	7	11	18	69%
Gemeniano Galicia Sr. Memorial School	3	4	7	27%
Total	10	15	25	100%

This design was selected because random assignment of participants was not feasible due to existing classroom structures and ethical considerations. The use of intact classes allowed the researcher to implement the intervention in a natural classroom setting. The comparison of pretest and posttest scores enabled the researcher to measure changes in pupils' word recognition skills after exposure to the intervention.

Research Locale and Time of the Study

The study was conducted during the School Year 2023–2024 at the following public elementary schools in San Andres, Romblon: Doña Martina F. Ganan Memorial School, Barangay Mabini, and Gemeniano Galicia Sr. Memorial School, Barangay Doña Trinidad.

Approval to conduct the study was secured from the respective school principals in October 2023. The implementation of the intervention and data gathering were conducted from November to December 2023.

Population and Sample of the Study

The population of the study consisted of selected Grade Three pupils enrolled in the two selected schools during the School Year 2023–2024.

A purposive sampling technique was utilized to identify the participants. A diagnostic word recognition test was administered to all Grade Three pupils. Pupils who demonstrated difficulty in word recognition were selected as respondents.

A total of twenty-five (25) pupils qualified based on the diagnostic results. These pupils comprised the final sample of the study.

The sample represented all identified struggling readers in the two schools.

Research Instruments

The study utilized a researcher-made quantitative test instrument designed to measure pupils' word recognition skills. The same 15-item test was administered as both the pretest and posttest. The test consisted of five (5) easy words, five (5) average words, and five (5) difficult words.

The vocabulary words were adapted from Grade Three English textbooks to ensure alignment with the curriculum and pupils' reading level. Pupils were instructed to read each word without phonetic

assistance. Scores were based on the number of correctly recognized words.

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS). The following statistical tools were employed:

Frequency and Percentage. To describe the distribution of participants and diagnostic results.

Mean and Standard Deviation. To determine the level of word recognition performance before and after the intervention

Paired-Sample t-Test. To determine whether there was a statistically significant difference between pretest and posttest scores

The paired-sample t-test was appropriate because the same participants were measured twice. The level of significance was set at 0.05.

Before conducting the parametric test, the normality of the difference scores was examined. If the assumption of normality was violated, the Wilcoxon Signed-Rank Test was considered as a non-parametric alternative.

Data Collection Procedure

Prior to data collection, the researchers secured formal approval from the principals of Doña Martina F. Ganan Memorial School and Gemeniano Galicia Sr. Memorial School to ensure ethical compliance and cooperation. A diagnostic word recognition test was then administered to all Grade Three pupils in the selected schools to identify participants who demonstrated difficulty in word recognition. Using purposive sampling, twenty-five (25) pupils who met the inclusion criteria were selected as respondents for the study.

Before the intervention, the pretest was conducted to establish a baseline measure of the pupils' word recognition skills. The intervention consisted of the Read-Aloud Digital Flashcard, which was implemented over a period of three consecutive weeks. Daily reading sessions were conducted from Monday to Thursday, in which the teacher modeled correct pronunciation, engaged pupils in choral reading, and provided

Table 2. Diagnostic test results of the grade 3 pupils of Dona Martina F. Ganan Memorial School and Gemeniano Galicia Sr. Memorial School in word recognition

		Mean	Std. Deviation
Valid	Diagnostic Test Score	6.9	4.2

Table 3. The Reading assessment results of the grade three pupils in word recognition

	Minimum	Maximum	Mean	Std. Deviation
Pre-reading Assessment	0	14	8.04	4.609
Post-reading Assessment	11	15	14.00	1.296

opportunities for independent reading. Immediate corrective feedback and reinforcement were given to ensure accuracy and retention. Weekly assessments were conducted every Friday to monitor progress and maintain systematic documentation of the pupils' performance.

Following the completion of the three-week intervention, the posttest was administered using the same validated instrument as the pretest. All responses were collected, tabulated, and encoded systematically. To maintain consistency and control potential sources of bias, the intervention and assessments were conducted under similar classroom conditions, and the same teacher facilitated all sessions. The collected data were then analyzed using appropriate quantitative statistical methods to determine the effectiveness of the Read-Aloud Digital Flashcard on improving word recognition skills among Grade Three pupils.

RESULTS AND DISCUSSION

The diagnostic test (Table 2) yielded a mean score of 6.90 (SD = 4.20), while the pre-reading assessment showed a mean score of 8.04 (SD = 4.61). These results indicate that many Grade Three pupils had difficulty recognizing words before the intervention.

Similar findings were reported by Dizon and Tang (2017), who found that elementary learners demonstrated low vocabulary and word recognition scores before exposure to digital flashcard interventions. Their study revealed that learners initially struggled with word recall and decoding, highlighting the need for structured instructional support. Likewise, Rojabi et al. (2022) reported that pretest results in vocabulary-based interventions consistently showed limited word mastery among young learners prior to digital reinforcement strategies.

The low baseline performance in the present study confirms trends observed in recent research; despite access to formal schooling, many primary pupils continue to struggle with foundational reading skills.

This emphasizes the necessity of targeted word recognition interventions.

Table 3 shows that the grade 3 pupils have a very low score in word recognition, with a mean of 8.04, and a SD = 4.61. This means that most of the pupils have difficulty with word recognition.

In a related study, Tomas et al. (2021) found that the participants' mean reading scores demonstrated their poor reading status, despite the expectation that their ability to read would be frustrating and slow. The participants' pre-test results provided compelling evidence that many pupils in the nation still have difficulty acquiring new information, despite free and open education.

The posttest results (Table 3) revealed a mean score of 14.00 (SD = 1.30), a substantial increase from the pretest mean of 8.04. The reduced standard deviation also indicates more consistent performance among pupils after the intervention.

This significant improvement mirrors findings in several recent empirical studies. Dizon and Tang (2017) reported a notable increase in posttest vocabulary scores following digital flashcard use, demonstrating measurable gains in word recognition and recall. Likewise, Rojabi et al. (2022) found that learners exposed to digital flashcards significantly outperformed their pretest scores, confirming the effectiveness of multimedia vocabulary tools.

More recent studies concluded that digital flashcards significantly improve elementary learners' word recognition and vocabulary mastery due to increased engagement, interactive repetition, and accessibility. These studies emphasize that digital tools provide immediate reinforcement and repeated exposure, which are critical factors in improving word-level reading skills.

The current study's posttest results support these findings, suggesting that the Read-Aloud Digital Flashcard is an effective instructional tool for enhancing word recognition among Grade Three pupils.

Moreover, the post-reading assessment results of the pupils are higher than the pre-reading assessment

Table 4. The difference between pre-reading and post - reading assessment results before and after using the read-aloud digital flashcards

Variables	Mean Value	Std. Deviation	t-value	Sig.(2-tailed)	Result	Decison
Pre-reading vs Post-reading	5.962	3.955	7.687	.000	Significant	Reject the Hypothesis

results. Therefore, the pupils performed better in the post-reading assessment than in the pre-reading assessment after using the digital flashcards in word recognition.

The paired-sample t-test (Table 4) revealed a statistically significant difference between pretest and posttest scores, $t(25) = 7.687$, $p < .001$, with a mean difference of 5.962.

This result confirms that the improvement observed was not due to chance. Similar statistically significant gains have been documented in recent digital flashcard intervention studies. For instance, experimental research on digital vocabulary tools consistently reports significant pretest–posttest differences, indicating that structured digital reinforcement produces measurable learning gains.

In comparable quasi-experimental studies involving elementary learners, digital flashcard groups showed significantly higher post-intervention scores compared to baseline performance. These findings reinforce the conclusion that digital flashcards are an effective strategy for improving word-level literacy skills.

The significant statistical result in the present study, therefore, aligns with established empirical evidence demonstrating the effectiveness of digital flashcard interventions in elementary reading instruction.

CONCLUSION

Based on the findings of this study, it can be concluded that the use of the Read-Aloud Digital Flashcard significantly enhanced the word recognition skills of Grade Three pupils. The intervention effectively addressed the baseline difficulties in word recognition, leading to substantial improvement in reading performance. This demonstrates that digital flashcards, when integrated with guided practice and auditory support, can serve as an effective pedagogical tool for developing foundational literacy skills.

The study further suggests that incorporating digital learning tools into classroom instruction can positively influence academic performance and student

engagement. The success of the Read-Aloud Digital Flashcard highlights the potential of technology-assisted interventions in supporting early reading development, particularly for pupils who struggle with word recognition.

Finally, the findings provide valuable insights for teachers and educational practitioners, emphasizing the importance of combining visual and auditory reinforcement in literacy instruction. Future research could explore the long-term effects of digital flashcards, examine their application across diverse learning contexts, and investigate additional digital strategies to enhance reading fluency and comprehension. The implementation of such interventions has the potential to inform innovative literacy practices and contribute to the development of effective digital learning approaches in primary education.

AUTHORS' CONTRIBUTIONS

The lead author contributed almost 80% of the research work, with the remaining 20% provided by the co-authors.

CONFLICT OF INTEREST

The authors declare no financial, personal, or professional conflicts of interest that could have influenced this paper's research, analysis, or findings.

DECLARATION OF AI USE

While preparing this manuscript, the authors used ChatGPT and Claude to assist in arranging ideas for clarifying sentences and paragraphs. However, the authors fully take responsibility for the work published, as all AI-generated content was further reviewed, edited, and validated by them.

ETHICAL CONSIDERATIONS

All the participants were informed about the details of the study. The researcher conducted a diagnostic test

to gather respondents from grade 3 pupils. A letter was sent to the school head for approval before the intervention started. The parents of the respondents who participated in the research study were informed of their children's performance and that their children needed to attend an intervention class and complete some exams and exercises.

The respondents' parents who were willing to engage in this research study with their children were given consent or signed a waiver. To perform this research study, the researcher additionally sought guidance and recommendations from teachers and school principals at the school where the respondent. Thus, the researchers informed the respondents of their roles during the study. The researchers ensured that the data presented in the study were valid and reliable.

Furthermore, only the researchers have access to the research data. The researcher assured that all information acquired would be handled with the highest confidentiality and utilized only for this study. The researcher acknowledged the owner of the knowledge and data used in this study.

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