



Enhancing Literacy Skills of Grade 2 Learners Through the Use of Innovative Story Flashcards

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ABSTRACT :

The teaching of reading is a significant instructional concern for teachers at San Isidro Elementary School, Palanas North District, Schools Division of Masbate Province. Learning outcomes in reading assessments were poor, with only 5 out of 14 students passing and a class average of 35.71%. It was found that most pupils struggled with the three key components of literacy: word recognition, fluency, and comprehension. Traditional teaching methods and unengaging reading materials that did not cater to learners' diverse needs compounded these difficulties. Using visual and colorful flashcards tailored to learners' developmental levels, teachers implemented an interactive intervention. With word-picture associations, phonetic cues, and simple sentences, these flashcards promote vocabulary building, phoneme recognition, and reading fluency. The intervention involved daily 20-minute reading sessions under teacher supervision for thirteen Grade 2-Tulips pupils over four weeks. The progress of learners was monitored by observing them and keeping records. In a pretest-posttest design, the effectiveness of the intervention was evaluated. A pretest mean scores of 6 improved to a posttest mean of 8 based on results from the pretest. Since the data did not follow a normal distribution, the Wilcoxon signed-rank test yielded a significant p-value of 0.003. Moreover, it was also assessed 13 out of 14 Grade 2-Tulips or 93% were grade level ready which means they can fluently read and understand the textbook languages. The results confirmed that the learners' reading skills had improved significantly. Study results showed that flashcards were effective, low-cost, and engaging instructional tools for improving reading performance among early grade students. Through repetitive and playful flashcard activities, literacy outcomes were improved. A wide implementation of flashcard-based instruction in schools with similar reading challenges was recommended based on the positive results.

Keywords: reading intervention., flashcards, word recognition, one group pretest-posttest design, interactive learning

1. Introduction

Literacy in reading has long been recognized as a critical component of academic success, particularly during early years of formal education. Word recognition, fluency, and comprehension were essential skills for learners to be able to engage with written texts (OECD, 2019). Many young learners, however, have had difficulty developing these skills, particularly in resource-limited settings where engaging, adaptive learning materials are difficult to find. Students at San Isidro Elementary School struggled significantly with reading literacy, calling for a more learner-centered approach to teaching. Students with reading difficulties often experience long-term academic setbacks and diminished self-esteem if they are not addressed early, as Pretorius and Spaull (2016) noted.

address this challenge, the researchers developed innovative and interactive flashcards as a strategy for improving reading literacy. The flashcards were designed not simply as rote memorization tools, but as multisensory learning materials that integrate phonetic cues, word-picture associations, and simple sentences. Through active participation, repeated exposure, and playful learning, the flashcards improved vocabulary development, phoneme recognition, and reading fluency (Putri et al., 2023; Karpicke & Bauernschmidt, 2011). To sustain interest and accommodate various learning styles, the materials used in this study were tailored to the developmental level of the learners and incorporated vibrant colors, engaging visuals, and interactive prompts. Supriatin and Rizkilillah (2018) found that flashcards could significantly improve early vocabulary retention and reading engagement when used interactively.

This study examined the effectiveness of these innovative flashcards in improving reading literacy of Grade 2 learners. To provide a practical and solution for teachers in similar educational contexts who had difficulty using traditional reading instruction, it aimed to be both practical and scalable. The study was significant because it offered a low-cost, evidence-based approach that facilitated both academic improvement and learner motivation. This research contributed to efforts to enhance early literacy outcomes in underserved school communities by integrating playful and interactive strategies.

1.1 Statement of the Problem

This action research examined the effectiveness of innovative story flashcards in enhancing the reading proficiency of Grade 2 pupils at San Isidro Elementary School. Through the use of these innovative materials, specific aspects of reading proficiency were identified as most improving. Further, it

examined how flashcards supported literacy development by providing reading support and contributing to learners' literacy progress. Specifically, the study examined the reading proficiency levels of Grade 2 pupils before and after using innovative story flashcards. This study also aimed to determine whether the pupils' reading proficiency significantly improved after implementing this intervention.

2. Methods

2.1 Research Design

In this study, a pre-experimental one-group pre-test/post-test design was used to examine whether innovative story flashcards improved the reading proficiency of Grade 2 students at San Isidro Elementary School. A single group of participants was studied before and after the intervention to determine the effect of the intervention without a control group included (Salkind, 2010). Using a pre-test, learners were assessed on their ability to recognize words, read fluently, and comprehend. In order to develop phonemic awareness and vocabulary, the students participated in daily 30-minute story flashcard sessions for four weeks. Through the intervention, the teacher implementer facilitated these sessions and documented learner engagement and attendance. Post-testing was carried out using the same assessment used in the pre-test. As a result of this approach, the study was able to measure learning gains and identify the impact of the flashcard strategy on literacy development (Cohen et.al. 2018).

2.2 Data Sources

The primary data sources for this study were 14 Grade 2 students from Section 2-Tulip of San Isidro Elementary School, located in Palanas, North District, School Division of Masbate, Philippines. There were 8 males and 6 females among the participants. The learners took both pre- and post-test assessments to measure their reading proficiency before and after utilizing innovative story flashcards as an instructional intervention.

A quantitative analysis of the pre- and post-test scores was conducted to determine the effectiveness of the innovative story flashcards in improving reading proficiency. In order to assess the normality of the data, the Shapiro-Wilk test was used. Since the data did not follow a normal distribution, Wilcoxon Signed-Rank Test was used for analysis. A rigorous data analysis process validated the significance of the gains in reading proficiency attributed to the flashcard intervention (Field, 2018). By carefully analyzing the quantitative data, it was possible to confirm that the innovative story flashcards had an impact on the learners' ability to read. Additionally, data sources included relevant recent literature that supported the analysis and interpretation of findings. These studies provided a theoretical framework and comparative insights, allowing a comprehensive understanding of how the intervention aligned with current research on reading proficiency and instructional methods (Ridley, 2019).

2.3 Research Procedure

The study involved 14 Grade 2 pupils from Section 2-Tulip of San Isidro Elementary School, with 8 male and 5 female learners participating. Prior to implementation, the researchers secured approval from the school principal to ensure official permission and support for conducting the research within the school setting (Mertler, 2019). The researchers were oriented on the study's objectives and procedures to facilitate consistent and effective delivery of the intervention (Gay, Mills, & Airasian, 2012). The innovative story flashcards were carefully crafted by the research team, targeting phonemic awareness and vocabulary development suitable for Grade 2 learners. These materials were validated and evaluated by experts to ensure content accuracy and instructional appropriateness (Rothman & Thomas, 1994). Ethical considerations were observed throughout, including obtaining informed consent from parents or guardians, maintaining confidentiality, and emphasizing voluntary participation (Creswell & Creswell, 2018).

To ensure data integrity and prevent contamination, all assessment materials were securely handled and administered by the researchers under standardized conditions. The pre-test and post-test data were anonymized before analysis to safeguard participant identities and ensure unbiased processing (Mertler, 2019). Due to the non-normal distribution of the data, the researchers employed the Wilcoxon Signed-Rank Test, a non-parametric statistical tool, to analyze the differences between pre-test and post-test scores and evaluate the effectiveness of the flashcard intervention (Field, 2018).

3. Results and Discussion

3.1 Assessment of Data Normality Distribution

Table 1 presented the Shapiro-Wilk normality test used to determine whether the distribution of the pre-test and post-test reading proficiency scores was normal. This test is often used in educational and psychological research due to its sensitivity to deviations from normality (Razali & Wah, 2011). This study found that both pre-test ($p = .002$) and post-test ($p = .001$) scores significantly deviated from normal distributions. The findings indicated that the data violated the normality assumption, which is a prerequisite for using parametric statistical tests such as the paired t-test.

Due to the non-normal distribution of the data, a non-parametric statistical test was appropriate. The Wilcoxon Signed-Rank Test was selected since it does not assume normality and can be used to compare paired data, such as learners' scores before and after the flashcard intervention. Ghasemi and Zahediasl (2012) contend that non-parametric tests are robust alternatives to normality tests, ensuring the validity of statistical inferences. A normality test performed first by the researchers demonstrates adherence to proper statistical protocols and strengthens the credibility of their results.

The lack of assessment of normality prior to selecting statistical procedures can result in misleading interpretations of the data. This is particularly critical in action research and small-sample educational studies where variability is high and generalizability may already be limited. As emphasized by Laerd Statistics (2022), checking the distribution of data is an essential preliminary step before hypothesis testing, ensuring that the assumptions of the tests used are met or appropriately adjusted for. In this case, the use of the Shapiro-Wilk test allowed the researchers to choose the most suitable analysis for their specific data set, thereby enhancing the study's internal validity.

Additionally, applying the Shapiro-Wilk test reflects a wider trend in education research that values methodological transparency and rigor. The validation of data assumptions is crucial in studies involving young learners where cognitive and behavioral variability may affect measurement consistency (Field, 2013). The findings of classroom-based research, such as this one, can directly affect instruction and policy decisions at schools.

This study applied and interpreted the Shapiro-Wilk normality test in a way that was not only statistically sound but also pedagogically significant. The researchers maintained their methodological integrity by confirming that the data did not follow a normal distribution and therefore chose a non-parametric test. As a result of these practices, action research is vital in educational settings, including San Isidro Elementary School in Palanas North District, Philippines, where real-world teaching contexts and credible results are imperative.

Table 1
Shapiro-Wilk Normality Test Results for Pre-Test and Post-Test Scores of Grade 2-Tulips

Variables	N	S-W	P-value	Interpretation
Pretest	14	0.769	0.002	Not normally distributed
posttest	14	0.516	<0.001	Not normally distributed

3.2 Literacy & Reading Level of Grade 2-Tulips Learners after the Implementation of the Innovative Story Flashcards

Innovative story flashcards were implemented to help Grade 2-Tulips learners develop literacy skills. In order to evaluate the effectiveness of this intervention, a pre-test and post-test design was used. A non-parametric statistical method was required since the Shapiro-Wilk test indicated that the data did not follow a normal distribution. For this reason, the Wilcoxon Signed-Rank Test was applied to compare learners' reading performance before and after the intervention.

Statistically, learners' reading performance improved significantly post-intervention, as shown in Table 2 ($p = 0.003$). According to this study, story flashcards improved students' literacy levels. As the data did not follow a normal distribution, Wilcoxon's test was appropriate, in accordance with Ghasemi & Zahediasl's (2012) recommendations.

The significant improvement observed aligns with existing literature on the efficacy of flashcards in enhancing literacy skills. Flashcards have been recognized as effective tools for vocabulary acquisition and reading comprehension, particularly among young learners. They facilitate active recall and spaced repetition, which are critical for long-term memory retention (Karpicke & Roediger, 2008;).

Furthermore, the use of story-based flashcards integrates narrative elements that can engage learners more deeply. Storytelling has been shown to enhance language development and comprehension skills in early education settings. By embedding vocabulary and reading exercises within stories, learners are more likely to understand and retain new information.

The intervention also aligns with the principles outlined by the National Reading Panel, which emphasizes the importance of vocabulary instruction and reading comprehension strategies in early literacy development. The panel advocates for repeated exposure to words in various contexts, a practice inherently supported by the use of flashcards. In addition to cognitive benefits, the use of flashcards can positively influence learners' motivation and engagement. Visual aids, such as flashcards, have been found to enhance students' interest in reading activities, thereby fostering a more conducive learning environment.

The improvement in literacy skills observed in this study underscores the potential of incorporating low-cost, easily implementable tools like flashcards into the curriculum. Such interventions can be particularly beneficial in resource-constrained settings, offering an effective means to support literacy development without extensive materials or technology.

Moreover, the findings highlight the importance of tailoring instructional strategies to the specific needs and contexts of learners. By adopting evidence-based and adaptable methods, educators can more effectively address diverse challenges faced by students in literacy development.

In conclusion, the significant improvement in reading performance among Grade 2-Tulips learners following the implementation of innovative story flashcards demonstrates the efficacy of this intervention. The use of flashcards, supported by existing literature and aligned with established educational principles, offers a practical and effective approach to enhancing literacy skills in early education settings.

Table 2
Literacy Level of Grade 2-Tulips After the Implementation of the Innovative Story Flashcards

Variables	N	S-W	P-value	Interpretation
Pretest-posttest	14	0.00	0.003	Statistically significant

3.3 Reading Proficiency of Grade 2-Tulips After the Implementation of Innovative Story Flashcards

The reading proficiency data of Grade 2-Tulips learners significantly improved following the implementation of the Innovative Story Flashcards. Prior to the intervention, only 35.71% of the pupils demonstrated reading proficiency that met the expected grade-level standards. After the four-week flashcard-based reading sessions, this percentage surged to 93%, as 13 out of 14 learners were categorized as “Grade Ready,” capable of fluently reading and comprehending texts in both MTB-MLE and Filipino.

This improvement strongly aligned with the literature supporting the use of active retrieval and visual aids in literacy development. Karpicke and Roediger (2008) found that repeated retrieval significantly enhanced memory retention and learning efficiency, which was central to the flashcard intervention. The learners' repeated exposure to vocabulary and phonemes via flashcards allowed them to consolidate reading skills more effectively than through traditional lecture methods.

Moreover, this notable increase in proficiency supported the claim by the National Reading Panel (2000) that systematic phonemic awareness instruction, combined with guided oral reading, effectively promoted early literacy. The flashcards, designed to reinforce decoding and comprehension through storytelling and visuals, fulfilled these recommendations. The strategy not only targeted reading fluency but also made the learning experience engaging and student-centered.

Cognitive learning theories further supported the observed results. Smolen, Zhang, and Byrne (2016) emphasized that spaced and repetitive learning maximized memory encoding and minimized cognitive overload. The daily 20-minute flashcard sessions served as spaced learning interventions, offering brief yet consistent opportunities for learners to process and retrieve reading content, thus building automaticity in reading.

In terms of classroom engagement, the flashcards also appeared to foster motivation and reduced reading-related anxiety. Yunus, Salehi, and John (2013) noted that visual aids stimulated learners' interest, especially in reading tasks that initially seemed intimidating. The colorful and context-rich flashcards gave students confidence and contributed to a learning environment where mistakes were part of the growth process.

Pedagogically, the intervention underscored the importance of resourceful teaching. The flashcards were low-cost, low-tech tools, yet they proved highly effective. This supported the idea that even in under-resourced settings, literacy instruction could be impactful if it relied on research-informed strategies and consistent implementation (National Reading Panel, 2000).

The literacy classification framework used (Full Refresher to Grade Ready) also enabled the teacher-researchers to apply formative assessment principles by tracking learner progress and tailoring instruction accordingly. This practice was aligned with Tomlinson's (2014) principles of differentiated instruction, which emphasized adapting content and methods based on learners' readiness and ongoing assessment data.

Reflecting on the process, the researchers realized that integrating data-driven and evidence-based approaches into daily instruction was essential. The jump from 35.71% to 93% proficiency validated the effectiveness of thoughtful intervention design, emphasizing that even small-scale classroom research could lead to meaningful instructional transformation when rooted in sound methodology (Ghasemi & Zahediasl, 2012).

In summary, the flashcard intervention demonstrated that structured, repetitive, and visually supported literacy instruction could drastically enhance reading outcomes. The 57.29% gain in reading proficiency highlighted not only the power of instructional innovation but also the potential of teachers to lead change through reflective practice, data utilization, and research-aligned teaching methods.

Table 3
Reading Proficiency of Grade 2-Tulips After the Implementation of Innovative Story Flashcards

Category	Description	Frequency
Full Refresher	Students who cannot yet read in MTB-MLE and Filipino; need intensive help	0
Moderate refresher	Students struggle in decoding and comprehension in both languages	0
Light refresher	Student who read with some difficulty but show potential for improvement	1
Grade Ready	Student who read fluently and understand grade-level text both languages	13

4. Conclusion

The findings of this study demonstrated that the use of innovative story flashcards significantly enhanced the literacy skills of Grade 2 learners at San Isidro Elementary School. Prior to the intervention, learners exhibited low reading proficiency, with only 35.71% performing at grade level. After four weeks of daily flashcard-based sessions, reading proficiency increased dramatically to 93%, with 13 out of 14 pupils categorized as "Grade Ready." Statistical analysis using the Wilcoxon Signed-Rank Test revealed a significant improvement in learners' reading performance ($p = 0.003$), confirming the effectiveness of the intervention. The flashcards—designed with phonetic cues, word-picture associations, and engaging story elements—proved to be effective tools in promoting word recognition, reading fluency, and comprehension. Moreover, the use of vibrant, multisensory materials fostered learner engagement, increased motivation, and created a supportive reading environment. This study supports existing literature on the benefits of visual and interactive learning tools in early literacy development. It affirms that low-cost, adaptable interventions such as flashcards can produce substantial gains in reading proficiency, particularly in resource-constrained settings. The implementation of flashcard-based instruction offers a scalable, research-informed solution that empowers teachers to improve literacy outcomes using accessible materials. In conclusion, the significant learning gains observed validate the integration of story flashcards as a viable instructional strategy. The intervention not only addressed the immediate reading challenges of the learners but also demonstrated the potential of classroom-based research to inform practice and enhance learning. Educators in similar contexts are encouraged to adopt and adapt this approach to meet the diverse literacy needs of early-grade learners.

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