**Enhancing Reading Literacy of** **Kindergarten through Interactive Learning Materials at San Vicente Elementary School**

ABSTRACT

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| --- |
| This study evaluated the effectiveness of interactive learning materials in enhancing reading literacy among kindergarten pupils at San Vicente Elementary School. Thirty-six pupils were purposively selected and divided into two groups: Section Calla (experimental) and Section Lily (control), based on their class schedules—morning and afternoon sessions, respectively. A quasi-experimental design was used, with pre- and post-tests based on a 25-item standardized tool aligned with the Kindergarten Curriculum. The assessment covered five competencies: letter name and sound identification, matching upper and lower case letters, rhyming, and syllable counting.  Both groups initially demonstrated a "Consistent" level of reading literacy, meaning they correctly answered about 50–60% of the test items. The experimental group began slightly ahead in some areas. To account for this, the study focused on each pupil’s gain score—the difference between their pre- and post-test results—rather than only final scores.  The experimental group used various interactive learning materials during the intervention, including ABCs phonics song-youtube by Jack Hartmant and Endless Alphabet (focused on phonics) and Homer Learn *&* Grow (for reading along with stories). Activities also included letter-matching games and rhyming puzzles.  Results showed greater improvement in the experimental group, particularly in phonological awareness. However, gains in rhyming were less pronounced, possibly due to the limited emphasis on rhyming in the apps or the inherent difficulty of the skill.  Statistical analysis (t = -2.64, p = 0.013) confirmed a significant difference in outcomes. The study recommends integrating interactive tools in the kindergarten curriculum and developing stronger supports for rhyming instruction. |

***Keywords****: Reading literacy, Kindergarten, Interactive Learning Materials, Early Childhood Education, San Vicente Elementary School*

1. INTRODUCTION

In the contemporary educational landscape, enhancing early literacy skills is crucial for the academic success of young learners. Reading literacy serves as a foundational skill that influences not only academic achievement but also lifelong learning and personal development. As children enter kindergarten, they are at a critical juncture where their engagement with language and literacy can significantly shape their future reading abilities.

Traditional instructional methods often fail to captivate young learners, highlighting the need for innovative pedagogical approaches that foster engagement and cater to diverse learning styles. Research indicates that children who develop strong reading skills in their early years are more likely to excel in school and beyond, making early literacy a critical focus for educators and policymakers alike [1].

Kindergarten represents a pivotal stage in this developmental journey, where children transition from informal exposure to language to structured literacy instruction. However, traditional teaching methods often struggle to engage young learners effectively, highlighting the need for innovative pedagogical approaches that foster engagement and cater to diverse learning styles. Interactive learning materials have emerged as a promising strategy to enhance reading literacy among kindergarten pupils.

These materials encompass a range of resources, including interactive storybooks, digital applications, and hands-on activities that encourage active participation and collaboration.

The interactive nature of these resources transforms the reading experience into an engaging and enjoyable process, which is essential for young learners who thrive in dynamic environments. Research has demonstrated that interactive book reading activities can significantly improve reading fluency and comprehension skills in elementary students Çetinkaya [2]. For instance, a study involving 705 students found that interactive book reading led to significant improvements in both reading fluency and comprehension Lestari [3]. Moreover, the integration of technology into interactive learning has proven beneficial in promoting literacy skills.

A systematic review highlighted the positive effects of children's interactive reading apps on emergent literacy skills, emphasizing that well-designed applications can effectively enhance children's learning outcomes [4] Digital Play-Based Learning Enhances Reading Skills. A study conducted by Mondragon [5] explored the impact of digital play-based learning packages on kindergarten learners' reading and counting skills. The pre-experimental design revealed significant improvements in students' reading abilities, highlighting the potential of integrating digital tools to make learning more engaging and effective [5].

These digital tools often incorporate multimedia elements—such as animations, sound effects, and interactive features—that provide contextual cues to aid comprehension. Such enhancements not only make reading more appealing but also support diverse learning preferences among young children [6]. The role of social interaction in literacy development cannot be overlooked either.

Interactive learning environments encourage collaboration among peers, allowing children to share ideas and insights during reading activities. Research indicates that peer interactions during literacy tasks can lead to improved vocabulary acquisition and narrative skills [7]. Additionally, hands-on materials used during narrative literacy activities have shown significant positive effects on story comprehension among preschool students, further underscoring the importance of interactive methods McGee [8]. Furthermore, studies have explored various interactive reading models that incorporate different strategies to enhance language skills.

These models encourage children to engage with texts actively through dialogue and open-ended questions, which can lead to improved language proficiency Kiuru [9]. This study aims to evaluate the effects of interactive learning materials on enhancing early reading literacy among kindergarten pupils. Early reading literacy covers the competencies of kindergarten pupils along identifying letter names and letter-sounds, matching uppercase and lower case letters, identifying the beginning sound of a given word, distinguishing words that rhyme and counting syllables in a given word Justice [10]. Performance in the early reading literacy are categorized as beginning, developing or consistent. Learners in the beginning level rarely demonstrates the expected competency, developing learners sometimes demonstrates the competency, and consistent learners always demonstrate the expected competency Salcedo [11].

Contextualized Interactive Videos Improve Reading examined the use of the "Bahay Kubo" contextualized interactive video application to enhance reading skills among daycare pupils in Manila. The study found that the application significantly improved reading performance, emphasizing the importance of culturally relevant and interactive resources in early literacy education Redondo [12].

Teacher perceptions on play in literacy instruction explored filipino early childhood educators' perspectives on using play as a medium for delivering literacy instruction. The study revealed that teachers recognize the significance of various play types—such as active, exploratory, manipulative, music, and dramatic play—in advancing literacy development Omaga [13]. Developed e-learning materials in the mother tongue to improve early reading instruction.

The quasi-experimental study demonstrated that these materials significantly enhanced learners' phonics and word recognition skills, emphasizing the effectiveness of culturally and linguistically appropriate resources in early literacy education. U.S. agency for international development. [14] Usaid and DepEd collaboration on interactive reading materials DepEd order no. 13, s. 2023, states that the collaboration between the U.S. Agency for International Development (USAID) and the Department of Education (DepEd) led to the development of over 200 interactive e-books and educational videos in 10 local languages. These resources, aligned with the DepEd curriculum, are freely accessible through DepEd Commons, aiming to make learning more accessible and engaging for students across the Philippines.

The challenges in reading literacy especially in kindergarten is that lack of access to resources many schools, especially in rural or underfunded areas, lack quality reading materials, technology, or interactive tools that support early literacy, limited teacher training some educators may not be trained in developmentally appropriate practices for teaching literacy to young children, particularly using modern, interactive materials, language barriers in multilingual countries like the Philippines.

Students may struggle with reading in a second or third language, which can hinder comprehension and motivation, low home literacy environment many children come from homes where reading is not modeled or encouraged, and parents may not have the literacy skills themselves to support early learning.

Learning disabilities or developmental delays undiagnosed learning needs can make early literacy acquisition more difficult without targeted support and lack of engagement traditional, text-heavy approaches often fail to capture young children's attention and do not cater to their natural learning styles, which are more sensory and play-based.

The proponent of this research study is a Kindergarten teacher handling two sessions and is looking for a teaching strategy which could effectively enhance the early reading literacy of kindergarten pupils. The researcher wants to improve early literacy outcomes researching the effectiveness of interactive learning materials can lead to strategies that significantly improve how children acquire reading skills at the most critical stage of development; and to bridge educational gaps that may help address disparities in access to quality education particularly in San Vicente Elementary School.

These could be done by identifying practical and affordable solutions that teachers can implement, fostering lifelong learning and building strong reading skills at the kindergarten level. These competencies improve performance across all learning areas and help build a strong foundation for lifelong learning.

They also foster personal and community motivation to support children in overcoming literacy barriers, making my research both meaningful and locally impactful through the use of interactive learning strategies. This study explored how interactive learning materials can effectively improve early reading literacy outcomes among kindergarten pupils at San Vicente Elementary School.

2. Statement of the problem

This study aimed to assess the effectiveness of interactive learning materials in enhancing reading literacy among kindergarten pupils at San Vicente Elementary School It sought to answer the following questions:

1. What is the level of early reading literacy of the control and experimental groups in the pre-test?

2. What is the level of early reading literacy of the control and experimental groups in the post-test?

3. Is there a significant difference in the early literacy level between the control and

experimental groups after the use of interactive learning materials?

**2.1 HYPOTHESIS**

There is no significant difference between the post-test scores of the experimental and control groups in reading literacy.

3. methodology

**3.1 Research Design**

This research utilized quasi-experimental design with two groups: a control group and an experimental group. This design allows for the comparison of outcomes between groups receiving different interventions while controlling for other variables.

**3.2 Locale of the Study**

The study was conducted at San Vicente Elementary School (SVES). San Vicente Elementary School was situated at the foot of the hill northeast of San Pablo District. San Vicente Elementary School was classified as a medium-sized school. It was a complete elementary school that offered Kindergarten to Grade 6 classes.

**3.3 Participants of the Study**

The participants of the study were the 36 kindergarten pupils of San Vicente Elementary School. They were divided into two existing sections: Section Calla, consisting of 18 pupils, was designated as the experimental group, while Section Lily, also with 18 pupils, served as the control group. These groups were selected using intact class sections to maintain the natural classroom setting and avoid disrupting established learning routines

**3.4 Research Instrument**

The research utilized a pre-test and a post-test. Items in the tests are directly lifted from the sections of reading and literacy; language and communication of the standardized assessment tool used in the kindergarten curriculum. Competencies include letter names recognition, letter-sound correspondence, rhyming words identification and print awareness (upper- and lower-case letters). Each competency has five items.

The test consists of twenty-five items in all. To address these competencies and enhance reading literacy among kindergarten pupils, the experimental group was exposed to a set of interactive learningmaterials. These materials were specifically designed to align with the target skills and to make learning engaging, multisensory, and developmentally appropriate for young learners.

Below is a detailed discussion of the materials used: Alphabet Sound Flashcards a set of visually appealing flashcards featuring uppercase and lowercase letters along with corresponding images (e.g., "B" with a picture of a ball) and the phonetic sound of each letter. Letter Name Bingo is a game-based material using bingo cards filled with random uppercase and lowercase letters. The teacher calls out a letter name, and learners mark the correct letter if it's on their card. Rhyming Word Picture Puzzles a self-matching puzzle pieces that learners connect based on rhyming word pairs (e.g., dog–log, cat–hat). Each piece contains an image and a word. Alphabet Tracing Mats a reusable tracing sheets with both uppercase and lowercase letters that learners can trace using markers or their fingers. Some mats include directional arrows for proper stroke order.

Interactive alphabet song and phonics videos, digital media resources that include animated songs and phonics videos presenting the alphabet, letter sounds, and rhyming through music and motion. Story-based learning with big books large-format storybooks containing repetitive texts, letter highlights, and interactive prompts. Stories were integrated with questions that emphasized target literacy skills.

**3.5 Data Gathering Procedures**

To conduct the study, the researcher first sought permission from the appropriate school authorities. Once approval was granted, the data gathering procedure was implemented in several key steps.

The participants of the study were drawn from two existing kindergarten sections. Section Calla was assigned as the experimental group, which received reading instruction using interactive learning materials. Meanwhile, Section Lily served as the control group and followed the traditional approach to reading instruction without the use of any interactive or multimedia resources. Both groups consisted of a comparable number of pupils and exhibited similar classroom profiles in terms of age range, gender distribution, and average academic performance based on previous quarterly grades. Additionally, coordination with the kindergarten teachers confirmed that both sections had parallel instructional pacing, learner behavior, and classroom resources prior to the intervention. These checks were conducted before the study commenced to ensure fairness and validity in evaluating the intervention’s effectiveness.

At the beginning of the quarter, a pre-test was administered to both groups to assess the pupils’ initial reading literacy levels. The pre-test consisted of 25 items adapted from a standardized kindergarten assessment tool. It focused on four key reading competencies: Letter Name Recognition, Letter-Sound Correspondence, Rhyming Words Identification, and Print Awareness (including both uppercase and lowercase letters), with each competency represented by five items.

Following the pre-test, the experimental group (Section Calla) received instruction using a variety of interactive learning materials during their daily reading sessions. These materials included alphabet sound flashcards, a letter name bingo game, rhyming word picture puzzles, alphabet tracing mats, phonics songs and videos, and story-based big books. These tools were consistently integrated into lessons throughout the quarter to support and enhance pupils’ reading development.

In contrast, the control group (Section Lily) continued their reading instruction using conventional teaching strategies, such as oral reading, letter drills, and printed worksheets, without the inclusion of interactive or multimedia materials. Despite the difference in instructional methods, both groups followed the same set of learning competencies and adhered to a similar instructional schedule. While these traditional strategies can support literacy to some extent, they may lack the dynamic, multisensory stimulation needed to fully engage young learners. The more passive nature of these methods may also limit opportunities for immediate feedback and active exploration, which are crucial for developing early literacy skills such as phonemic awareness and letter-sound correspondence. This may help explain the comparatively lower performance and greater variability seen in the control group's post-test results. At the end of the quarter, a post-test—using the same 25-item assessment as the pre-test—was administered to both groups. This allowed the researcher to measure any improvements in the pupils’ reading literacy and to evaluate the effectiveness of the interactive learning materials used with the experimental group.

**3.6 Statistical Analysis**

**Table 1. The results of the pre-test and post-test of the experimental and control groups were tabulated, analyzed, and interpreted.**

The following rubric was used in interpreting the test results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Competencies** | **Competency**  **Interpretation** | **Item Tested** | **Score** | **Reading Literacy Level** | **Descriptive Interpretation** |
| **Identifying Letter Names** | Recognizes a few letters but needs more practice. | 5 | 4-5 | Consistent | Recognizes most or all letter names correctly and confidently |
| 2-3 | Developing | Recognizes some letters but makes occasional errors; needs more practice. |
| 0-1 | Beginning | Struggles to identify letters; needs significant support and reinforcement. |
| **Identifying Letter Sounds** | Struggles with letter sounds. Needs more support. | 5 | 4-5 | Consistent | Identifies most or all letter sounds accurately. |
| 2-3 | Developing | Recognizes some letter sounds but with occasional mistakes; needs more support. |
| 0-1 | Beginning | Has difficulty identifying letter sounds; requires intensive assistance. |
| **Matching Upper/Lower Case** | Performs well in matching cases. | 5 | 4-5 | Consistent | Matches big and small letters correctly. |
| 2-3 | Developing | Matches some letters but still makes a few mistakes. |
| 0-1 | Beginning | Finds it hard to match big and small letters; needs more help. |
| **Distinguishing Rhymes** | Can rhyme some words but occasionally makes mistakes. | 5 | 4-5 | Consistent | Can tell which words rhyme most of the time. |
| 2-3 | Developing | Knows some rhyming words but still makes mistakes. |
| 0-1 | Beginning | Has a hard time knowing which words rhyme; needs more help |
| **Counting Syllables** | Good understanding of syllable counting. | 5 | 4-5 | Consistent | Counts syllables in words correctly most of the time. |
| 2-3 | Developing | Can count syllables but makes some mistakes. |
| 0-1 | Beginning | Has trouble counting syllables; needs more support. |
| **Total** | **25** | | | | |

Mean was used to compare the scores of the experimental group and the control group.

A t-test for independent sample means was used to determine the significant differences in the mean scores of the experimental group and control group.

4. Results and discussion

**4.1 Table 2: Pre-Test Early Reading Literacy Levels of the Control and Experimental Groups**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Early Reading Literacy Competencies*** | ***Control Group*** | | | ***Experimental Group*** | | |
| *Mean* | *Reading Literacy Level* | *SD* | *Mean* | *Reading Literacy Level* | *SD* |
| 1. Identifying Letter Names | 3.89 | Developing | 0.83 | 4.33 | Consistent | 1.03 |
| 1. Identifying Letter Sounds | 3.89 | Developing | 0.83 | 4.28 | Consistent | 0.46 |
| 1. Matching Upper/Lower Case | 4.06 | Consistent | 0.94 | 4.56 | Consistent | 0.62 |
| 1. Distinguishing Rhymes | 2.78 | Developing | 0.81 | 3.06 | Developing | 1.39 |
| 1. Counting Syllables | 3.39 | Developing | 0.78 | 4.33 | Consistent | 1.24 |
| ***OVERALL MEAN*** | **4.31** | **Consistent** | **0.84** | **4.11** | **Consistent** | **0.95** |

Based on the pre-test results in Table 1, the control and experimental groups at San Vicente Elementary School both demonstrated "Consistent" overall reading literacy levels, with the control group slightly higher at 4.31 compared to the experimental group's 4.11. In specific competencies, the experimental group showed stronger performance in identifying letter names (4.33) and counting syllables (4.33), both indicating good understanding, while the control group scored lower in these areas (3.89 and 3.39, respectively), suggesting the need for more practice. However, both groups struggled with distinguishing rhymes, scoring 2.78 and 3.06, which indicates difficulty in this area. These findings imply that while the experimental group already shows promising skills in key early reading domains even before the intervention, both groups would benefit from targeted instruction in phonological awareness, particularly rhyming, to further enhance foundational literacy skills.

These results align with the study by Çetinkaya [2], which highlighted that interactive book reading activities significantly improve foundational reading skills, especially in letter recognition and phonological awareness. Their findings support the idea that early exposure to interactive literacy tools helps children engage more deeply with reading tasks, leading to measurable progress in early literacy competencies.

However, this raises important questions: Why did rhyming remain a challenge for the control group despite general literacy development? And why did the experimental group improve significantly in rhyming after the intervention? Moreover, why did the interactive materials prove especially effective in enhancing phonological awareness? Which specific features of the interactive learning materials contributed most to these improvements? Addressing these questions could clarify how particular aspects of the materials targeted phonological skills and helped overcome difficulties in rhyming recognition, shedding light on the mechanisms behind the intervention’s success.

**4.2 Table 3: Post-Test Early Reading Literacy Levels of the Control and Experimental Groups**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Early Reading Literacy Competencies*** | ***Control Group*** | | | ***Experimental Group*** | | |
| *Mean* | *Reading Literacy Level* | *SD* | *Mean* | *Reading Literacy Level* | *SD* |
| 1. Identifying Letter Names | 4.56 | Consistent | 0.51 | 5.00 | Consistent | 0.00 |
| 1. Identifying Letter Sounds | 4.50 | Consistent | 0.51 | 4.78 | Consistent | 0.43 |
| 1. Matching Upper/Lower Case | 4.50 | Consistent | 0.51 | 4.83 | Consistent | 0.38 |
| 1. Distinguishing Rhymes | 3.67 | Developing | 0.91 | 4.00 | Consistent | 0.00 |
| 1. Counting Syllables | 4.33 | Consistent | 0.59 | 4.89 | Consistent | 0.32 |
| ***OVERALL MEAN*** | **4.31** | **Consistent** | **0.61** | **4.70** | **Consistent** | **0.23** |

Based on the post-test results in Table 2, the experimental group that used interactive learning materials consistently outperformed the control group across all early reading literacy competencies. Remarkably, the experimental group achieved perfect mean scores with zero variability in identifying letter names (5.00, SD = 0.00), indicating that every student in the group mastered this skill completely. They also scored near-perfect means in letter sounds (4.78), matching upper/lowercase letters (4.83), distinguishing rhymes (4.00), and counting syllables (4.89), all within the “Consistent” reading literacy level. In contrast, the control group’s means were slightly lower, especially in rhyming (3.67), where their performance was classified as “Developing.” The overall mean score of 4.70 and a low standard deviation of 0.23 for the experimental group further demonstrate not only superior performance but also remarkable consistency among learners.

The effectiveness of the interactive materials may be attributed to their multisensory and engaging nature. For example, phonological awareness likely improved due to songs and chants embedded in the apps that reinforced letter sounds and rhyming patterns memorably. Similarly, interactive clapping and tapping activities embedded in the lessons may have helped pupils better count syllables by linking auditory and kinesthetic cues. These features promote active participation, repetition, and immediate feedback, which are essential for solidifying foundational reading skills in young learners.

Importantly, when measuring improvement relative to their pre-test scores, the experimental group exhibited substantial gains. For instance, their mean rhyming score increased by 0.94 points (from 3.06 to 4.00), slightly surpassing the control group’s gain of 0.89 points. Similar gains were observed in letter name identification (+0.67) and syllable counting (+0.56), confirming that the intervention accelerated literacy development beyond initial baselines. These results strongly suggest that interactive learning materials significantly enhance kindergarten students’ early reading skills, particularly phonological awareness and syllable recognition, thus better preparing them for subsequent reading stages.

These findings are consistent with the meta-analysis by Piasta [6], which highlights how interactive books support engagement, repetition, and multisensory reinforcement, all critical elements in early reading acquisition.

**4.4 Table 4. Difference in Early Reading Literacy Level of Control and Experimental Groups Post-Intervention**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Mean Performances*** | ***Mean*** | ***SD*** | ***t-value*** | ***p-value*** | ***Decision at 0.05*** |
| Control Group | 4.31 | 0.61 | -2.64 | 0.013 | **Reject Ho** |
| Experimental Group | 4.70 | 0.23 |

The data in Table 3 reveal a significant difference in the post-intervention early reading literacy levels between the control group (mean = 4.31, SD = 0.61) and the experimental group (mean = 4.70, SD = 0.23), with a t-value of -2.64 and a p-value of 0.013. Since the p-value is less than the 0.05 level of significance, the null hypothesis is rejected, indicating that the use of interactive learning materials had a statistically significant positive impact on the reading literacy of kindergarten pupils at San Vicente Elementary School. This finding suggests that incorporating interactive learning resources is an effective strategy in early childhood education to enhance literacy skills and improve learning outcomes. These results align with the study by Lestari [3], which demonstrated that interactive reading models effectively improve language skills among early childhood learners, affirming the benefits of integrating multimedia elements in foundational instruction.

**5. CONCLUSION**

In conclusion, the study titled “Enhancing Reading Literacy of Kindergarten through Interactive Learning Materials at San Vicente Elementary School” demonstrated that the use of interactive learning materials significantly enhanced the reading literacy of kindergarten pupils. The pre-test results indicated a comparable baseline between the control and experimental groups, with minor differences in specific competencies (such as identifying letter names and counting syllables) considered during analysis, thus supporting the interpretation of post-intervention gains. The common difficulty observed in rhyming skills highlights the need for focused instruction in phonological awareness, suggesting an important area for future intervention and curriculum development. Following the intervention, the experimental group showed statistically significant improvements in key competencies such as letter name recognition, letter-sound correspondence, rhyming, and print awareness. These findings affirm the effectiveness of interactive learning materials in promoting foundational literacy skills and suggest that their integration in early education can foster meaningful and lasting academic improvements.

Ethical approval:

The study was conducted with the knowledge and approval of San Vicente Elementary School and adhered to all institutional and ethical standards for research involving children. The research complied with all applicable ethical guidelines. The procedures ensured the protection of participants' rights, including the maintenance of privacy and confidentiality throughout the study

Consent

Informed consent was obtained from the parents or guardians of all child participants prior to data collection. The respondents participated voluntarily after being fully informed about the purpose, nature, and potential implications of the study. All responses were gathered with strict adherence to ethical research guidelines, ensuring respect for the participants' privacy and confidentiality throughout the research process.

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DISCLAIMER (ARTIFICIAL INTELLIGENCE)

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Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

I acknowledge that I have used Copilot for only to refine some the sections in the document.

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