



Readify: Interactive e-story book to improve English reading comprehension skills

¹Angelo B. Arellano, ¹Honey Mist A. Salvador, ¹Mitchie Mae L. Barrios, ²Romelyn D. Ramos, ¹Rosemarie S. Badillo, ³Jovelle M. Reyes & ⁴Rose Nannette J. San Juan

Abstract

English reading comprehension is a core competency that underpins significant contribution to the advancement of academic skills in all subjects. This study determined the impact of interactive e-storybooks conceptualized as readily accessible digital stories to improve, foster, and yields reader's comprehension (READIFY) enhancing Grade 5 learners' English reading comprehension skills in a public elementary school in the Philippines during S.Y. 2024-2025. The study utilized a quantitative approach, collecting data from survey questionnaires and pre-test and post-test assessments. Statistical tools such as mean and standard deviation were used to determine the material's efficiency in improving the learners' English reading comprehension skills. A T-test was employed to determine if there is a significant difference between the students' level of English reading comprehension skills before and after the intervention. The findings showed that READIFY intervention led to significantly enhanced reading comprehension skills among Grade 5 pupils. Pre-test scores (81.2%) indicated an instructional level while post-test scores (64.7%) demonstrated an independent level, signifying a marked improvement in their ability to read and understand the material. The statistical evidence supports the program's efficacy and highlights its potential as a valuable tool for educators seeking to enhance language learning outcomes.

Keywords: *interactive, e-storybooks, English reading, comprehension skills, enhance, grade 5 learners*

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About the authors:

¹Undergraduate student. Laguna University.

²Corresponding author. Undergraduate student, Laguna University. Email: ramosromelyn002@gmail.com

³Master of Arts in English. Instructor - Laguna University

⁴Master of Arts in Mathematics. Instructor - Laguna University



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1. Introduction

Reading is a fundamental skill that plays a crucial role in a student's academic success and overall development. It is through reading that students gain knowledge, expand their vocabulary, and develop critical thinking skills. Moreover, English reading comprehension is a fundamental skill that underpins academic success and lifelong learning. The enhancement of skills in reading is critical for educational growth and achievement. It serves as a sort of gateway for the advancement of academic skills in all subjects. Teaching and learning basic reading comprehension are often considered as active processes since these involve strategies that should be explicitly taught such as drawing conclusions, sequencing events, noting details, getting the main idea, following directions, predicting outcomes, identifying cause and effect relationships, and interpreting graphs and tables.

According to the Department of Education (2023) on its General Shaping Paper, the goal of the Enhanced Basic Education Program (K–12) is to improve learners' communication abilities so that they can adapt to current and future problems and opportunities. However, the Organization for Economic Cooperation and Development (OECD) and the Program for International Student Assessment (PISA) showed in their 2018 results that the Philippines ranked last in reading comprehension among 79 countries. The country's reading score, according to statistics, was 340, which was 100 points lower than the OECD average of 487. According to the Philippine Institute for Development Studies (PIDS), some senior high school (SHS) learners are unable to write in English.

Therefore, this study emphasizes the growing importance of utilizing interactive reading materials to enhance reading comprehension. A study by Day et al. (2024) introduced interactive e-books employing a choose-your-own-adventure format with embedded comprehension questions. These e-books provided immediate feedback, which significantly improved students' vocabulary acquisition and understanding of complex concepts. The interactive nature of the e-books engaged students actively, leading to notable gains in word learning and comprehension skills. Their research showed that such digital tools significantly improved vocabulary acquisition and conceptual understanding. This aligns with the aim of READIFY, an interactive e-storybook designed to support Grade 5 learners in improving their comprehension skills. By incorporating immediate feedback and engaging story paths.

This study argues that using interesting and interactive learning materials in teaching reading is an effective technique to motivate the students to learn. Through this study, the study aims to investigate the effectiveness of using interactive e-story book conceptualized as readily accessible digital stories to improve, foster, and yields reader's comprehension (READIFY) to improve grade 5 learners' English reading comprehension skill. Readify is an interactive e-storybook which is made by the authors, a platform that offers a range of multimedia features, including animations, clickable words and interactive quizzes, which can captivate and engage learners.

2. Literature Review

2.1. E-book

Interactive e-storybooks have multiple features that support young children to develop reading capabilities and increase technological experience (Lefever-Davis & Pearman, 2005), and are considered to be a good tool for children's independent reading at home and in literacy centers (Pearman & Chang, 2010). An interactive e-book takes the traditional reading experience to an entirely new level by seamlessly incorporating multimedia elements and interactive features through clickable links, quizzes and even interactive diagrams (Siahaan et al., 2023). It can revolutionize learning by offering quizzes to test comprehension, interactive exercises to reinforce concepts and supplementary materials for thorough understanding within the text. In today's generation, visual-based learning is used as resources to engage learners better (Harman, 2024). This led to the rise of interactive e-books. According to Asrowi et al. (2019), interactive e-books elevate the e-learning experience and effectiveness, emphasizing the engagement and improved attention they bring to learners. Interactive e-books prompt or allow voluntary interaction with the content, enhancing engagement levels and facilitating smoother information transfer in e-learning environments.

Most children use technology, allowing them to engage in a variety of features. Therefore, students can learn in a variety of strategies and feature to easily understand what they read. Align with this, the benefits of interactive read-aloud in educational settings, emphasizing strategies like using puppets, props, and assigning roles to students to enhance engagement and academic vocabulary growth. Interactive techniques have been shown to improve comprehension, engagement, and vocabulary acquisition during read-aloud

activities (van der Wilt et al., 2019; Cole et al., 2017; August et al., 2024; Yang, 2023; Zeng et al., 2025; Uçak & Kartal, 2022).

In today's generation, student's attention is important to be able to sustain engagement about the text they read or the topic being discussed. To obtain students higher level of reading comprehension skill, a person shall have the ability to sustain attention and engagement having a voluntary interaction with the content or text they read. Lim et al. (2021), comparing interactive e-book reading and paper-based reading on middle school students' reading comprehension, found differences in the effects of different mediums on learners' reading abilities. However, digital media that offers numerous benefits in education, the impact on reading comprehension in students requires careful consideration. Research suggests that excessive screen time and a lack of engagement with print materials may hinder the development of reading stamina and comprehension skills (Wyndie, 2024). Hence, implementing a balanced approach, teaching digital literacy skills, and promoting strategies for effective reading, teachers can help students navigate the digital landscape while fostering strong reading abilities.

The use of interactive techniques such as read-aloud activities, as mentioned by Continental Press (2024), and interactive E-story books, as discussed by Asrowi et al. (2019), has been shown to improve comprehension, engagement, and vocabulary acquisition. It was supported by López-Escribano et al. (2023) that incorporating interactive e-storybooks in language learning programs enhances students' language acquisition and comprehension skills. The interactive features in e-books provide a dynamic platform for language practice and skill development, catering to diverse learner needs.

According to Suganda (2022), digital media use in English improve students' literacy; teachers can show creativity and innovation in delivering material during the learning process. Meanwhile, students who have a high level of learning awareness must be able to take advantage of digital media that can make it easier to access information about the material provided. To improve students' literacy skills, individuals must be able to master and access technology that is developing rapidly today. Following this, Mayorga et al. (2022) argued that ICTs have changed the way the world operates but if used to develop children's reading during their earliest years of learning, they are a blessing.

Digital narratives are considered as the technological resource which can be used as pedagogical tool to present the content simultaneously with the available visual and audial

components taking advantage of the functioning of the Google Classroom structure. Therefore, teachers need to understand the challenges that their students face during the reading process and this is where new methodology has to be used therefore changing the conditions of the learning process so that students can be participative and innovative – this is where the narratives could play an important role as a resource that dictates some changes in the learning process and supports the students from behind in the wall system and helps in the cognitive translation using the audiovisual stimuli. By the fact that today's students are more literate with modern technologies, they are able to cope up and actively participate during the discussion. In some instances, student's themselves were able to comprehend the information they see, hear and read and share it as part of their daily discussion.

Studies have echoed that the medium of reading, whether it is interactive e-books or traditional paper-based reading, has varying effects on a learner's reading comprehension. This highlights the importance of considering the medium of instruction in developing reading comprehension strategies (Vogelzang et al., 2024). Expanding on this, Mulyawati et al. (2024) highlighted the role of interactive e-storybooks in promoting critical thinking skills among elementary school students. The study revealed that interactive e-books facilitated crucial thinking by encouraging students to analyze, evaluate, and synthesize information presented in the digital format. By incorporating interactive elements that stimulate critical thinking, the Interactive E-Story Book can help learners develop a deeper understanding of English texts and improve their reading comprehension skills. Similarly, Day et al. (2024) also highlighted that integrating interactive e-storybooks in language learning programs has shown promising outcomes in improving students' language proficiency and comprehension. The interactive nature of e-books offers an engaging platform for language practice and skill development, contributing to enhanced language acquisition.

According to Kao et al. (2019), high interactivity in e-books significantly improve students' reading motivation, story comprehension, and understanding of chromatic concepts compared to low interactivity. The study of Asrowi et al. (2019) found that incorporating multimedia elements and interactive features, provide a dynamic platform for e-story books that enhances English reading comprehension skills by promoting active engagement, critical thinking, and knowledge retention.

2.2. Reading Comprehension

Reading comprehension is essential for academic performance, informed citizenship, and professional success. Unacademy (2022) emphasizes that in a fast-paced, information-driven world, the ability to read and understand complex texts is not just a student's concern but a necessity for all. Strong comprehension skills enable individuals to analyze news, grasp technical documents, and make critical decisions, contributing to more informed and active participation in society. Furthermore, Guthrie et al. (2012) argue that comprehension fosters motivation and engagement in academic contexts, which are crucial for sustained learning across disciplines.

Reading comprehension is a fundamental skill that underpins educational success and lifelong learning. In the digital age, comprehension strategies have evolved to incorporate both traditional and technological approaches. The transition from printed text to interactive digital media presents new opportunities and challenges for educators and learners. Traditional comprehension strategies continue to play a crucial role in developing literacy. According to Percipio Global (2024), effective reading comprehension involves a suite of strategies, including inferring meaning from context, summarizing main ideas, using graphic organizers, formulating questions, and engaging in metacognitive monitoring. These approaches help learners become more active and reflective readers. Duke and Pearson (2002) support these strategies, noting that comprehension instruction must be explicit, scaffolded, and embedded within meaningful reading activities to be effective. Research by the National Reading Panel (2000) further affirms that systematic instruction in comprehension strategies significantly improves students' reading outcomes across age groups.

With technological advancements, the reading landscape has dramatically shifted. Peras et al. (2023) highlight a growing transition from traditional print media to digital platforms, particularly among young readers. Interactive e-books, enhanced with multimedia elements such as animations, sounds, and interactive tasks, provide a dynamic reading environment. These features have been shown to increase engagement and comprehension, particularly when they are directly tied to the content of the story (Son et al., 2020). In a similar vein, Şimşek (2024 (2023) found that students using interactive e-storybooks in classroom settings demonstrated higher engagement and comprehension levels compared to peers engaged with static, print-based texts. These findings align with broader research

indicating that digital reading tools can promote deeper learning when thoughtfully designed and implemented (Kendeou et al., 2016). Importantly, the interactivity must be content-relevant to avoid cognitive overload and distraction (Butterfuss & Kendeou, 2020).

Despite the benefits of digital tools, comprehension outcomes are not uniform across all learners. Individual cognitive differences—such as working memory, executive function, and prior knowledge—play a significant role in how readers understand texts. Butterfuss and Kendeou (2020) assert that prior knowledge is particularly influential; it can aid comprehension when accurate but can also hinder it when misconceptions interfere with the interpretation of new information. This is a critical consideration for educators designing instructional interventions, especially when integrating digital resources. Moreover, the variability in how students interact with digital texts is influenced by their reading proficiency and cognitive maturity. Son et al. (2020) discovered that younger readers benefited most from interactive features that reinforced story content, whereas more advanced readers gained from interactions that encouraged inferencing and higher-order thinking. These findings suggest that digital tools should be customized to align with learners' developmental stages and cognitive profiles.

2.3. Theoretical Framework

This study is anchored to the Cognitive Load Theory (Sweller, 2019), which suggests that learners have limited cognitive resources and imposed by instructional materials can impact learning outcomes. In the context of English reading comprehension, learners' cognitive load can be influenced by factors such as text complexity, vocabulary difficulty, and the presence of multimedia elements. By understanding the cognitive load demands of reading materials, authors can design intervention programs that optimize learning and enhance reading comprehension skills. The Cognitive Load Theory is highly relevant to the current study as it provides insights about the student's level of English reading comprehension skills before and after the implementation of the interactive e-story book. By assessing the students' pre-reading, the study can identify the cognitive load demands of the reading materials that the students encounter.

This study is also supported by the Self-Regulated Learning Theory (Zimmerman, 2000) which emphasizes learners' active participation in their learning process and the use of metacognitive strategies to monitor, control, and regulate their learning. By incorporating

self-regulated learning strategies, such as goal setting, planning, and self-reflection, the intervention program can enhance students' self-regulation skills and their ability to manage their cognitive load during reading comprehension activities.

3. Methodology

This study employed a descriptive research design, analyzing the effectiveness of READIFY through pre-test and post-test assessments. The research was conducted in one elementary school in Laguna, Philippines with 30 Grade 5 learners selected through purposive sampling. The intervention involved utilizing an interactive e-storybook developed using PowerPoint, integrating multimedia features to engage learners.

The research follows ADDIE model in the development, deployment and evaluation of the intervention tool.

Analysis. It includes the process of conducting a pre-test that the authors can tailor instruction to meet the specific needs of each learner, ensuring that the content is appropriately challenging and engaging. The study implemented the pre-test by providing learners with a set of carefully selected stories, each accompanied with questions designed to assess different levels of students' reading comprehension. This helps identify gaps in knowledge, areas of strength, and individual learning styles, allowing for a more personalized and effective learning experience.

Design. It includes the process of designing interactive e-story book features involving creating dynamic and engaging digital reading experiences. Interactive elements such as animations, sound effects, clickable elements, and multimedia content that can enhance the storytelling experience, making it more immersive and captivating for readers. The interactive e-storybook considered usability, ensuring a user-friendly interface across devices, and interactivity, incorporating animations, sound effects, and clickable elements to enhance engagement.

Development. It includes the process of creating and incorporating engaging features into a learning experience including interactive multimedia content that actively involves learners in the learning process. The purpose of developing interactive e-story is to enhance learner engagement, promote active participation, and improve reading comprehension skills.

Implementation. It shows the process of the utilization of interactive e-story book that can enhance students' reading experiences, promote comprehension skills, and foster a

love for reading. Students accessed the e-story book on the device, exploring animations, sound effects, and clickable elements that helped bring the story to life. Researchers guided them through discussions and activities, like answering comprehension questions and completing interactive quizzes.

Evaluation. It involves a post-test, assessing learning outcomes and ensuring that the interactive e-story book is effective, engaging, and tailored to the needs of the learners.

Pre-test and post-test assessments were based on standardized Philippine Informal Reading Inventory (Phil-IRI) passages. The collected data were statistically analyzed using mean, standard deviation, and a paired T-test to evaluate comprehension improvements. The study followed ethical guidelines to protect participants and ensure fairness. Informed consent was obtained, meaning participants understood the purpose of the study and agreed to take part. The data obtained was kept confidential, with results presented anonymously. Data collection and analysis were transparent and accurate, avoiding manipulation, ensuring equality for all. Most importantly, participants' well-being and rights were respected throughout the research process.

4. Findings and Discussion

Table 1

The level of English reading comprehension skills before the Readify intervention program

Story	Mean (Score)	SD (Score)	Percentage Score	Interpretation
Story A	3.07	1.33	61.4%	Instructional
Story B	2.87	1.29	57.4%	Instructional
Story C	3.27	1.45	65.4%	Instructional
Overall	3.07	1.36	61.4%	Instructional

Legend: Frustration: 0 - 2 (0% - 28%); Instructional: 3 - 4 (29% - 57%); Independent: 5 - 7 (58% - 100%)

Table 1 shows the level of Grade 5 pupils' English reading comprehension skills before the Readify intervention program. The pre-test data indicates that before the Readify intervention, the Grade 5 pupils' reading comprehension skills for each story were categorized as instructional. Specifically, for Story A, the average score of 3.07 (with a standard deviation of 1.33 and a percentage score of 61.4%) suggests that the students required some teacher support to understand the content. The same interpretation holds for

Story B and Story C, with average scores of 2.87 and a percentage score of 57.4% and 3.27, and a percentage score of 65.4%, respectively. With the overall mean score of 3.07 and SD of 1.36 and a percentage score of 61.4% these scores fall within the instructional range, indicating students could understand the content with some help. The variability in scores, as reflected by the standard deviations, suggests that there were some pupils who struggled more than others.

According to a study by Garcia and Tan (2022), learners who fall within the instructional level often need guided practice and support to improve comprehension, especially in class where individualized attention is limited. This finding matches the result of this study, showing prior to intervention, most students were not yet capable of reading independently. Similarly, Villanueva (2021) found that traditional classroom instruction without specialized reading programs led to stagnant or slow progress in comprehension skills. The Readify program aimed to fill this gap by providing engaging and structured reading activities that targeted student needs. Therefore, the pre-test results help to establish the baseline from which improvements are observed.

Table 2

The level of English reading comprehension skills after the Readify intervention program

Story	Mean (Score)	SD (Score)	Percentage Score	Interpretation
Story A	4.57	1.67	65.4%	Independent
Story B	4.43	1.56	63.5%	Independent
Story C	4.37	1.63	62.4%	Independent
Overall	4.46	1.62	63.8	Independent

Legend: Frustration: 0 - 2 (0% - 28%); Instructional: 3 - 4 (29% - 57%); Independent: 5 - 7 (58% - 100%)

Table 2 shows the level of Grade 5 pupils' English reading comprehension skills after the Readify intervention program, with marked improvement in their reading comprehension skills. The average scores for Story A, 4.57 with a standard deviation of 1.67 and a percentage score of 65.4%, suggests that the students understand the content. The same interpretation holds for Story B and Story C, with average scores of 24.43 and a percentage score of 63.5% and 4.37, and a percentage score of 62.4%, respectively, indicating that the students were now able to comprehend the material independently. With the overall mean score of 4.46 and SD of 1.62 and a percentage score of 63.8% suggesting that most students

performed more consistently and shifting in scores to the independent level indicates a significant enhancement in students' comprehension abilities.

As reported by Santos and Dizon (2023), targeted intervention programs that include digital platforms significantly enhance students' reading comprehension because they are interactive and tailored to different levels. This supports the improvement shown in table 2, where learners moved from the instructional to the independent level. Moreover, a similar study by Lee (2020) concluded that interventions using multimedia storybooks and guided reading sessions increased motivation and performance in reading tasks. Therefore, the Readify intervention, which offers engaging stories, visual aids, and guided activities helped the students become more confident and independent readers, as reflected in the post-test results.

Table 3

Significant difference in the reading comprehension skills before and after the Readify intervention program

Criteria			Mean	t-value	Significance Level	Critical Value	Interpretation
Overall Reading Skills		Pre-test	9.21	-8.35	0.05	2.045	Significant
		Post-test	13.37				

Table 3 shows the significant difference in the reading comprehension skills of Grade 5 pupils before and after the Readify intervention program. The paired t-test results show a t-value of -8.35, which is far beyond the critical value of 2.045 at the 0.05 significance level, confirming that the difference between the pre-test and post-test scores is statistically significant. This indicates that the improvement in reading comprehension skills from 9.21 to 13.37 is not due to chance, but rather the result of the Readify intervention.

The study of Ramos and Cruz (2024) also showed a statistically significant improvement in learners' comprehension levels after a six-week reading intervention, this suggests that structured reading programs have a strong positive effect on student performance. Consistency and appropriate difficulty levels in materials are key factors in improving reading outcomes. The results in table 3 strongly align with this, proving that Readify was effective in improving and raising the comprehension levels. Likewise, Peña and Valdez (2021) found that when students participate, their comprehension scores

significantly improve. This further supports the idea that well-designed interventions like Readify can lead to an effective tool that improved the academic performance of the pupils.

5. Conclusion

This study determined the impact of interactive e-storybooks conceptualized as readily accessible digital stories to improve, foster, and yields reader's comprehension (READIFY) developed by the researchers to enhance the Grade 5 learners' English reading comprehension skills. The results strongly support the research hypothesis that the Readify intervention program led to significant improvements in reading comprehension skills among Grade 5 pupils. The research confirmed that the increase in scores was statistically significant, supporting the conclusion that the Readify program had a positive impact on students' reading comprehension. The findings indicate that the intervention successfully helped students achieve a higher level of reading proficiency specifically students reading comprehension skills, which can be beneficial in their overall academic performance.

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This study was conducted in accordance with the ethical guidelines set by the Laguna University. The conduct of this study has been approved and given relative clearance(s) by the Laguna University's Research Development Center.

ORCID

Angelo B. Arellano <https://orcid.org/0009-0008-8710-9100>

Rosemarie S. Badillo <https://orcid.org/0009-0003-4690-7257>

Mitchie Mae L. Barrios <https://orcid.org/0009-0004-5150-6746>

Romelyn D. Ramos <https://orcid.org/0009-0005-9045-2872>

Honey Mist A. Salvador <https://orcid.org/0009-0000-0234-9407>

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