



Effectiveness of Picture Story-Based Reading Enhancement Materials for Grade II Pupils

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ABSTRACT

This study evaluated how well Picture Story-Based Reading Enhancement Materials improved the reading abilities of Mallig Elementary School students in Grade II. The study was carried out in response to learners' reported reading challenges, specifically with regard to decoding, comprehension, and fluency. The study specifically aimed to ascertain: (1) the reading proficiency of Grade II students prior to the use of picture stories in reading activities; (2) the reading proficiency of Grade II students following the use of picture stories in terms of decoding, comprehension, and fluency; and (3) whether there was a significant mean improvement in the students' reading proficiency from the pretest to the posttest. The study used a one-group pretest-posttest design and a quantitative research methodology. The study's respondents were fourteen students in Grade II. Before and after the intervention, the students' reading performance in decoding, comprehension, and fluency was evaluated using the Comprehensive Literacy Reading Assessment (CLRA). The collected data was analyzed and interpreted using the mean, standard deviation, and paired sample t-test. The findings revealed that the students had poor reading performance before the intervention, especially in comprehension and fluency, and that only a small percentage of them had adequate decoding abilities. Following the use of the Picture Story-Based Reading Enhancement Materials, the students showed notable progress in every aspect of reading. According to the posttest results, reading fluency had significantly increased, comprehension had significantly improved, and decoding had nearly reached mastery. Decoding, comprehension, and fluency scores on the pretest and posttest differed significantly, according to statistical analysis, since the computed t-values were higher than the tabular value at the predetermined level of significance. The null hypothesis was thus disproved. The study found that Picture Story-Based Reading Enhancement Materials are useful teaching resources for raising students' reading proficiency in Grade II. Learner engagement, comprehension, fluency, and overall reading performance were all improved by the combination of text and visual storytelling. The results, which are based on Paivio's Dual Coding Theory and Mayer's Multimedia Learning Theory, confirm that integrating spoken and visual information helps young learners comprehend concepts more deeply and retain information better. The study is significant to teachers, school administrators, curriculum planners, and future researchers as it provides empirical evidence supporting the use of picture-story based materials as an effective intervention for struggling readers. Furthermore, the findings contribute to the growing body of literature advocating the integration of visual-enhanced instructional materials in early literacy instruction to promote meaningful and inclusive learning experiences among elementary pupils.

Keywords: Picture stories; reading intervention; reading comprehension; decoding skills; reading fluency; elementary reading instruction.

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INTRODUCTION

The rapidly changing educational landscape highlights the need for learner-centered and innovative teaching approaches that develop critical thinking, creativity, collaboration, and problem-solving skills among learners (Partnership for 21st Century Skills, 2019). Traditional teaching methods are no longer sufficient in addressing the demands of 21st-century education, leading to the integration of technology-based instructional strategies. One of these strategies is game-based learning (GBL), which enhances learner engagement, motivation, participation, and academic performance through interactive and technology-driven activities (Prensky, 2001). Studies conducted in Asia, Latin America, Europe, and Central Asia revealed that GBL effectively improves learning outcomes, higher-order thinking skills, and learner participation across different educational settings (Khasanov A, et.al, 2022).

In the Philippines, educational reforms such as the implementation of the Most Essential Learning Competencies (MELCs) through DepEd Order No. 12, s. 2020 (Department of Education (DepEd, 2020) and the MATATAG Curriculum through DepEd Order No. 10, s. 2023 (DepEd, 2023) emphasize active learning and the development of foundational skills. Despite these reforms, Grade IV learners in Araling Panlipunan continue to experience challenges such as low participation, short attention span, lack of motivation, and difficulty in understanding lessons due to traditional lecture-based instruction. Teachers also face limited availability of localized and engaging instructional materials appropriate for learners' needs.

To address these concerns, the study proposed the development of Interactive Game-Based Instructional Materials (IGBIM) for Grade IV Araling Panlipunan aligned with the MELCs and the MATATAG Curriculum. The materials aimed to improve learners' understanding of concepts such as physical features, natural resources, and early Filipino societies through interactive and engaging activities. The study sought to enhance learner motivation, participation, comprehension, and academic performance while supporting improved instructional practices in Philippine basic education.

RESEARCH OBJECTIVES

This study aims to develop and validate an Interactive Game-Based Instructional Material (IGBIM) for Grade IV Araling Panlipunan to enhance pupils' engagement and learning. Specifically, it seeks to develop an instructional material in terms of objectives, content, game mechanics, and alignment with the Grade IV Araling Panlipunan curriculum. It also aims to determine the evaluation rating of the developed Interactive Game-Based Instructional Material (IGBIM) as assessed by experts in terms of content quality, instructional quality, and technical quality. Furthermore, it intends to assess the level of acceptability of the instructional material among Grade IV learners in terms of ease of use, engagement, and perceived usefulness.



METHODOLOGY

This study is grounded on several learning theories that support the development and validation of an Interactive Game-Based Instructional Material (IGBIM) for Grade IV Araling Panlipunan. The Constructivist Learning Theory of Jean Piaget and Lev Vygotsky explains that learners actively construct knowledge through interaction, exploration, and problem-solving (Piaget, 1952; Vygotsky, 1978). In relation to the study, the interactive games allow learners to actively engage with Araling Panlipunan concepts, promoting deeper understanding and meaningful learning.

The study is also anchored on the Experiential Learning Theory of David Kolb, which emphasizes learning through experience and reflection (Kolb, 1984). The developed games provide concrete learning experiences that enable learners to apply concepts in meaningful situations. In addition, the Self-Determination Theory of Edward Deci and Richard Ryan highlights the importance of motivation through autonomy, competence, and relatedness (Deci & Ryan, 1985).

Furthermore, the Cognitive Theory of Multimedia Learning by Richard Mayer supports the integration of text, images, audio, and interactivity in instructional materials to improve comprehension and retention while managing cognitive load (Mayer, 2009). The study also utilized the ADDIE instructional design model and the Systematic Design of Instruction framework to ensure a structured and theory-based development process (Branch, 2009; Dick & Carey, 2005). Formative evaluation and Keller's ARCS Model were also considered to enhance the quality and motivational aspects of the instructional material (Keller, 2010; Tessmer, 1993).

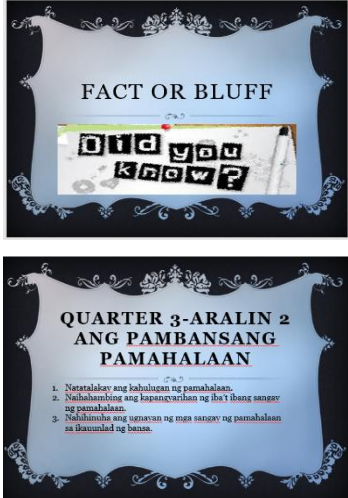
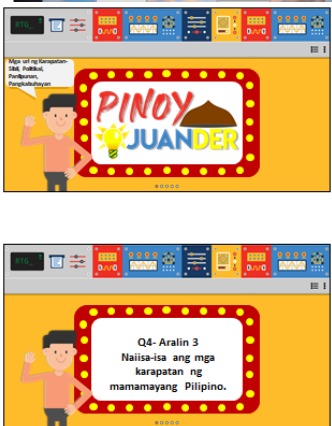
The study employed a Developmental Research Design using the Design and Development (D&D) approach (Creswell, 2014).

RESULTS AND DISCUSSION

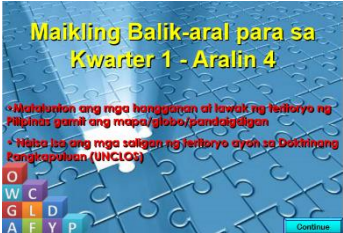
Table 1. Interactive game-based instructional material developed for Grade IV Araling Panlipunan

1. Fact or Bluff	Objective	- To develop critical thinking and decision-making skills - Enhance recall of key concepts
	Content	-Quarter 3-Aralin 2- Ang Pambansang Pamahalaan
	Game Mechanics	- Learners are presented with statements and decide whether they are fact or bluff. Immediate feedback is provided after each response.
	Alignment with the Grade IV curriculum	Aligned with the Grade IV Araling Panlipunan curriculum by helping learners distinguish correct and incorrect information about the national government. It supports the development of critical



Adapted from traditional classroom strategy “Fact or Opinion” / “True or False” activity 		thinking, comprehension, and understanding of the roles and functions of the pambansang pamahalaan based on the Most Essential Learning Competencies (MELCs).
2. Pinoy Juander – Adapted from trivia quiz games and Filipino cultural quiz 	Objective Content Game Mechanics Alignment with the Grade IV curriculum	-To enhance learners’ curiosity and knowledge - To develop inquiry and questioning skills - To encourage active participation - Q4- Aralin 3 - Karapatan ng mamamayang Pilipino. Learners answer trivia-style questions presented in an engaging format with clues and hints. Points are awarded for correct answers. Aligned with the curriculum through the enhancement of learners’ understanding of the rights of Filipino citizens. The game promotes active participation, inquiry, and appreciation of citizenship concepts included in Quarter 4, Aralin 3 under the Grade IV MELCs.
3. Word Jumble	Objective Content Game Mechanics	- To improve vocabulary and reinforce key concepts through word recognition and spelling. - Kwartar 1 - Aralin 4- Ang Pambansang Teritoryo Learners rearrange scrambled letters to form correct words. Hints or images may be provided.



- Adapted from word scramble / anagram games   	Alignment with the Grade IV curriculum	Aligned with the curriculum by reinforcing vocabulary and important concepts related to the Philippine territory. It helps learners recognize and remember terms connected to heograpiya and pambansang teritoryo, supporting language development and concept mastery required in the curriculum.
4. Clash-Mates - Adapted from the television game show "Family Feud" 	Objective Content Game Mechanics Alignment with the Grade IV curriculum	To develop collaborative thinking and assess prior knowledge through survey-based questions. Kwartar 1 - Aralin 4- Ang Pambansang Teritoryo Learners guess the most popular answers to survey questions. Points are based on matching top answers. Can be played Aligned with the curriculum by encouraging collaborative learning and recall of prior knowledge about the Philippine territory. The activity strengthens learners' understanding of concepts through interactive questioning and participation, consistent with learner-centered approaches in the Grade IV curriculum.



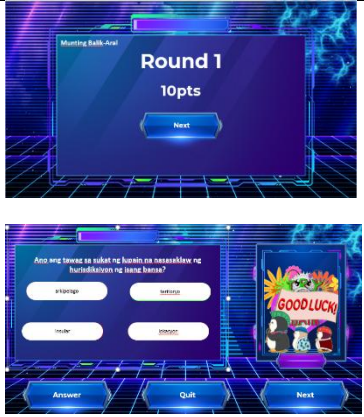
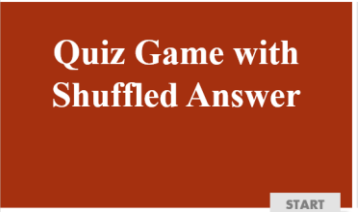
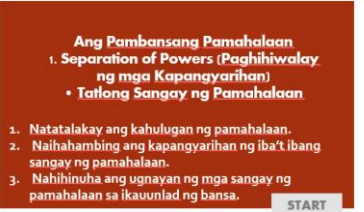
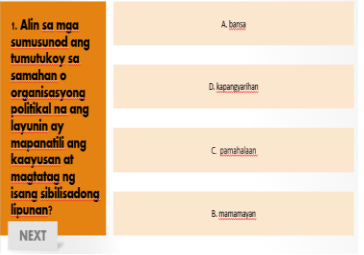
		
5. Quiz Game with Shuffled Answer - Adapted from digital quiz platforms and traditional multiple-choice assessments   	Objective	To assess learners' understanding of key concepts in a structured yet engaging way.
	Content	-Quarter 3-Aralin 2- Ang Pambansang Pamahalaan
	Game Mechanics	Multiple-choice questions with randomized answer options to prevent memorization patterns. Immediate scoring and feedback are provided.
	Alignment with the Grade IV curriculum	Aligned with the curriculum by assessing learners' understanding of concepts related to the national government in an engaging and structured manner. The randomized answers encourage independent thinking and mastery of competencies outlined in Quarter 3, Aralin 2 of the Grade IV Araling Panlipunan curriculum.



Table 1 presents the interactive game-based instructional materials developed for Grade IV Araling Panlipunan. The table shows the different games used in the study, including their objectives, content, game mechanics, and alignment with the Grade IV curriculum. The games were adapted from familiar classroom activities, television game shows, and digital quiz formats to create engaging and interactive learning experiences for learners. Each game was carefully designed to address specific learning competencies and objectives under the Most Essential Learning Competencies (MELCs) in Araling Panlipunan (DepED, 2016).

The games included in the study are Fact or Bluff, Pinoy Juander, Word Jumble, Family Feud, and Quiz Game with Shuffled Answer. Fact or Bluff and Quiz Game with Shuffled Answer focused on Quarter 3, Aralin 2: *Ang Pambansang Pamahalaan*, helping learners develop critical thinking, comprehension, and understanding of the national government through decision-making and structured assessment activities. Pinoy Juander centered on Quarter 4, Aralin 3: *Karapatan ng Mamamayang Pilipino*, promoting curiosity, inquiry, and active participation through trivia-style questioning. Meanwhile, Word Jumble and Family Feud were aligned with Quarter 1, Aralin 4: *Ang Pambansang Teritoryo*, reinforcing vocabulary development, collaborative learning, and recall of concepts related to the Philippine territory. These game-based activities support active learning and learner engagement, which are important components of effective instruction (Prensky, 2016).

Furthermore, the table highlights that the developed instructional materials were aligned with the Grade IV Araling Panlipunan curriculum and designed to support learner-centered instruction. The game mechanics encouraged active participation, immediate feedback, collaboration, and independent thinking among learners. Through the integration of game-based learning strategies, the instructional materials aimed to make learning more interactive, enjoyable, and meaningful while ensuring mastery of the intended competencies and objectives in Araling Panlipunan (Gee JP, 2003).

Table 2. Evaluation Rating of Experts on the Developed Interactive Game-based Instructional Material (IGBIM)

DOMAINS	RATING	DESCRIPTIVE RATING
Factor A. Content Quality		
1. Content is consistent with topics/skills found in the DepED Learning Competencies for the subject and grade/year level it was intended.	4	Very Satisfactory
2. Concepts developed contribute to enrichment, reinforcement, or mastery of the identified learning objectives.	4	Very Satisfactory
3. Content is accurate.	4	Very Satisfactory
4. Content is up-to-date.	4	Very Satisfactory
5. Content is logically developed and organized.	4	Very Satisfactory
6. Content is free from cultural, gender, racial, or ethnic bias.	4	Very Satisfactory
7. Content stimulates and promotes critical thinking.	4	Very Satisfactory
8. Content is relevant to real-life situations.	4	Very Satisfactory
9. Language (including vocabulary) is appropriate to the target user level.	4	Very Satisfactory



10. Content promotes positive values that support formative growth.	4	Very Satisfactory
MEAN SCORE	4	Very Satisfactory
Factor B. Instructional Quality		
1. Purpose of the material is well defined.	4	Very Satisfactory
2. Material achieves its defined purpose.	4	Very Satisfactory
3. Learning objectives are clearly stated and measurable.	4	Very Satisfactory
4. Level of difficulty is appropriate for the intended target user.	4	Very Satisfactory
5. Graphics / colors / sounds are used for appropriate instructional reasons.	4	Very Satisfactory
6. Material is enjoyable, stimulating, challenging, and engaging.	4	Very Satisfactory
8. Material effectively stimulates creativity of target user.	4	Very Satisfactory
9. Feedback on target user's responses is effectively employed.	4	Very Satisfactory
10. Target user can control the rate and sequence of presentation and review.	4	Very Satisfactory
11. Instruction is integrated with target user's previous experience.	4	Very Satisfactory
MEAN	4	Very Satisfactory
Factor C. Technical Quality		
1. Audio enhances understanding of the concept.	4	Very Satisfactory
2. Speech and narration (correct pacing, intonation, and pronunciation) is clear and can be easily understood.	4	Very Satisfactory
3. There is complete synchronization of audio with the visuals, if any.	4	Very Satisfactory
4. Music and sound effects are appropriate and effective for instructional purposes.	4	Very Satisfactory
5. Screen displays (text) are uncluttered, easy to read, and aesthetically pleasing.	4	Very Satisfactory
6. Visual presentations (non-text) are clear and easy to interpret.	4	Very Satisfactory
7. Visuals sustain interest and do not distract user's attention.	4	Very Satisfactory
8. Visuals provide accurate representation of the concept discussed.	4	Very Satisfactory
9. The user support materials (if any) are effective.	3.83	Very Satisfactory
10. The design allows the target user to navigate freely through the material.	4	Very Satisfactory
11. The material can easily and independently be used.	4	Very Satisfactory
12. The material will run using minimum system requirements.	4	Very Satisfactory
13. The program is free from technical problems.	3.83	Very Satisfactory
OVERALL MEAN	3.97	Very Satisfactory

Factor D. Other Findings	MEAN	DESCRIPTIVE RATING
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1. Conceptual errors.	4	Not Present
2. Factual errors.	4	Not Present
3. Grammatical and / or typographical errors.	4	Not Present
4. Other errors (i.e., computational errors, obsolete information, errors in visuals, etc.).	4	Not Present
MEAN SCORE	4	Not Present
OVERALL MEAN SCORE	3.99	Very Satisfactory

Table 2 presents the evaluation ratings of experts on the developed interactive game-based instructional material in terms of content quality, instructional quality, technical quality, and presence of errors. The findings revealed an overall mean of 3.99, interpreted as Very Satisfactory, for content, instructional, and technical quality. Content quality and instructional quality obtained a factor mean of 4.00, while technical quality obtained a factor mean of 3.97, all interpreted as Very Satisfactory. The indicators “The user support materials (if any) are effective” and “The program is free from technical problems” obtained the lowest mean rating of 3.83, although both were still interpreted as Very Satisfactory. Additionally, the evaluation on the presence of errors obtained an overall mean of 4.00, interpreted as Not Present. All indicators under conceptual, factual, grammatical, typographical and other errors obtained a mean rating of 4.00.

The findings indicate that the developed instructional material met the standards for quality instructional materials. The experts evaluated the material as relevant, engaging, organized, technically functional, and appropriate for Grade IV learners. The absence of identified errors further strengthened the accuracy, clarity, and reliability of the developed material. The results also suggest that the integration of game-based and multimedia elements may improve learner participation, motivation, and classroom engagement in Araling Panlipunan.

The findings agree with the studies of Marc Prensky (2001) and James Paul Gee (2003), which emphasized that game-based learning improves learner motivation and participation. Similarly, Hamari et al. (2014), Gómez-Urquiza et al. (2019), and Clark et al. (2016) explained that game-based instructional approaches improve learner engagement and academic performance. The findings also support Mayer’s Multimedia Learning Theory (Mayer, 2009), which emphasized that multimedia elements improve learner understanding and retention. Tessmer (1993) and Branch (2009) also emphasized the importance of validation and formative evaluation in developing quality instructional materials. The findings further support the goals of the Most Essential Learning Competencies (MELCs) and the MATATAG Curriculum of the Department of Education, which promote learner-centered and competency-based instruction.

CONCLUSION

Based on the findings gathered from the study, the following conclusions were drawn regarding the development and evaluation of the Interactive Game-Based Instructional Material (IGBIM) for Grade IV Araling Panlipunan. The conclusions highlight the effectiveness, instructional appropriateness, and learner-centered nature of the developed materials in enhancing classroom instruction and learner engagement.



1. The study successfully developed an Interactive Game-Based Instructional Material (IGBIM) for Grade IV Araling Panlipunan through a systematic development process that included learner needs analysis, curriculum alignment, instructional design, and the development of interactive learning activities based on the Most Essential Learning Competencies (MELCs) and the MATATAG Curriculum.
2. The developed IGBIM effectively promoted active learning, learner engagement, and meaningful understanding of Araling Panlipunan concepts among Grade IV learners through the integration of interactive and learner-centered educational games.
3. Five interactive educational games were successfully created, namely: Fact or Bluff, Pinoy Juander, Word Jumble, Clash-Mates, and Quiz Game with Shuffled Answer, which served as supplementary instructional tools to enhance classroom learning experiences.
4. Expert evaluation confirmed that the developed IGBIM was instructionally appropriate, aligned with the intended learning competencies, and suitable for the comprehension level and learning needs of Grade IV learners.
5. The findings further revealed that the IGBIM was engaging, learner-centered, and effective as a supplementary instructional material for teaching Araling Panlipunan, thereby supporting improved learner participation and understanding of the subject matter.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are hereby presented to further improve and strengthen the utilization of the Interactive Game-Based Instructional Material (IGBIM) in teaching Grade IV Araling Panlipunan.

1. The developed Interactive Game-Based Instructional Material (IGBIM) should be further localized by incorporating examples, situations, places, traditions, and cultural practices that are familiar to Grade IV learners in Flora, Apayao. The inclusion of localized content may help learners better relate to the lessons, improve their comprehension, and develop appreciation for their local culture and community.
2. Grade IV Araling Panlipunan teachers are encouraged to utilize the developed IGBIM as a supplementary instructional material and subject it to continuous evaluation and improvement to ensure its effectiveness and relevance to learners' needs.
3. Teachers and instructional material developers are encouraged to collaborate with local educators, culture bearers, and community members in creating additional game-based activities that reflect the learners' immediate environment and real-life experiences. Such collaboration may enhance the relevance, authenticity, and cultural appropriateness of the instructional materials while increasing learner engagement and participation during classroom instruction.
4. Future researchers may conduct continuous evaluation of the localized interactive games in different elementary schools to determine their effectiveness in improving learners' academic performance, motivation, and participation in Araling Panlipunan.
5. Future studies may also use the findings of this research as a basis for further improvement, enhancement, and expansion of the instructional materials to address diverse learning contexts, learner needs, and other subject areas in elementary education.



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