

CONTEXTUALIZED PLAY-BASED LEARNING INTERVENTION: EFFECTS ON THE ACADEMIC PERFORMANCE OF KINDERGARTEN LEARNERS***Grace B. De Jesus**

Graduate School, Naga College Foundation, Naga City, Philippines

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Abstract

This study examines the effects of a Contextualized Play-Based Learning (CPBL) intervention on the academic performance of kindergarten learners in Tigman Elementary School, Sipocot North District, during the school year 2023-2024. The intervention incorporated play-based activities that were contextualized to the learners' local environment and culture. Academic performance was assessed before and after the intervention through teacher-made tests on literacy and numeracy skills. Results indicated significant improvements in both areas, confirming that the contextualized play-based intervention positively impacted the academic performance of kindergarten learners.

Keywords: Contextualized play-based learning, Kindergarten, Academic performance, Literacy, Numeracy.

INTRODUCTION

Education is fundamentally the cornerstone of a child's future, and recent trends emphasize innovative and child-centric approaches in early childhood education. One such approach is contextualized play-based learning (PBL), which integrates cultural relevance and play into the educational process. This method has gained renewed attention in both international and local contexts as educators aim to create meaningful and effective learning experiences for young children. Globally, contextualized PBL has proven effective in actively engaging children in their learning processes. Research from countries like Finland highlights that play-based learning fosters creativity, critical thinking, and social skills. In Finland's educational model, learning transcends rote memorization and standardized tests; it emphasizes understanding the world through relevant and meaningful experiences. In contrast, developing nations often grapple with balancing traditional educational methods and the need for innovation. Here, contextualized learning becomes paramount, enabling the integration of local culture, language, and customs into educational content, which not only facilitates accessibility for children but also preserves cultural heritage. In the Philippines, the Department of Education recognizes the necessity of contextualized instructional materials in the classroom. As outlined in Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, the K to 12 program emphasizes a flexible curriculum that allows schools to localize and indigenize their educational content based on specific educational and social contexts. This aligns with Sustainable Development Goal 4, which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Additionally, DepEd Order No. 47, s. 2016, known as the Omnibus Policy on Kindergarten, states that "Children learn best through play and active involvement in concrete and meaningful experiences. Play is essential to healthy and holistic child development as it gives children opportunities to learn about and understand their world and

practice newly acquired skills. Play is also essential in building children's self-confidence, problem-solving, and cooperative learning skills that prepare them for lifelong learning. The varied play-based activities in Kindergarten lead the learners to becoming emergent literates, and help them to acquire naturally the competencies to develop holistically. This also leads them to become willing risk takers, and ready to tackle formal school". DepEd Order No. 8, s. 2015, further asserts that the most effective opportunities for assessing children occur during their natural engagement in daily classroom activities, particularly through play. Despite its benefits, implementing contextualized play-based learning presents several challenges. Globally, there remains a significant gap in resources and training for educators, particularly in low-income countries. In the Philippines, issues such as overcrowded classrooms, limited materials, and varying teacher preparedness hinder the effective adoption of this approach. To address these challenges, ongoing support from both the government and private sector was crucial. Investments in teacher training, resource development, and educational infrastructure are essential to ensure that all children, regardless of their backgrounds, have access to quality education. Thus, contextualized play-based learning represents a significant shift in early childhood education. By integrating local culture and play into the learning process, educators can create more meaningful and effective educational experiences. While the DepEd's support for contextualized instructional materials marks a positive step, further efforts are necessary to overcome existing challenges. As educators look to the future, it was evident that contextualized play-based learning has the potential to transform education and enhance academic performance among kindergarten pupils, both locally and globally. Despite the potential benefits, challenges remain, including limited resources, teacher preparedness, and overcrowded classrooms, especially in low-income communities. To address these issues, this study investigates the effect of contextualized play-based learning on kindergarten learners' academic performance at Tigman Elementary School. Specifically, it examines

improvements in literacy and numeracy following the implementation of the intervention.

Contextualized Play-Based Learning

The study focused on contextualized play-based learning, which was centered on the idea that children learned and understood the world through play, making the curriculum more meaningful by relating it to the learners' everyday life and cultural background. This method encouraged the use of locally available materials to make learning relevant to children's lived experiences (Basibas, 2020). By connecting educational content to real-life settings, teachers created an environment that enhanced student engagement and learning outcomes (Flores, 2021). This approach demonstrated improvement in students' schoolwork and assessments when they were taught using contextualized instructional materials, such as puppet-making activities, that enriched both cognitive and psychomotor skills.

Moreover, play-based learning in educational contexts, according to Ray and Smith (2020), allowed children to explore new ideas and engage in spontaneous, guided, or teacher-directed activities. Choppin (2020) reinforced this, emphasizing that student engagement significantly increased when taught in real-world contexts, making learning more relevant and motivating students to learn about their cultural heritage. Phillips and Scrinzi (2018) also pointed out that play-based learning was essential for developing thinking, socialization, and problem-solving skills, while Samuelsson and Carlsson (2018) argued that play and learning naturally occurred in children's everyday lives. Similarly, Jeffrey Choppin (2020) found that engagement increased when children were taught in real-world contexts, making learning more meaningful and relevant. This method, particularly when tied to contextualized instructional materials, allowed children to act on their interests and discover new ideas. Additionally, Phillips and Scrinzi (2018) noted that developmentally appropriate practices ensured that children met challenging but achievable learning goals, while Hurlock (2017) stressed the importance of play activities in fostering a pleasant learning atmosphere. Teachers had also faced challenges in applying play-based learning approaches, such as difficulties in behavior management and time constraints (Norhaidah *et al.*, 2020). However, Zakiah *et al.* (2021) argued that while some preschool teachers leaned towards formal instruction to prepare children for elementary school, denying the play needs of children negatively affected their overall abilities. Research by Wohlwend (2023) demonstrated that integrating play into kindergarten literacy instruction resulted in happier students who developed stronger literacy and social skills. Veiga *et al.* (2022) emphasized that free, unstructured play positively impacted social competence and emotional development, especially in early childhood settings, while Fung and Cheng (2022) noted the connection between pretend play and improved social competence, especially for girls. These findings showed how contextualized play-based interventions enhanced learning outcomes and social skills development.

Academic Performance

Academic performance was typically defined as a student's ability to complete academic tasks, often measured through grades, assessments, or standardized tests (Busalim *et al.*, 2019). The integration of contextualized play-based learning

strategies into kindergarten settings had been shown to significantly improve academic outcomes, particularly in areas such as literacy and numeracy (Taylor & Boyer, 2020). According to the LEGO Foundation (2023), play-based learning was linked to the development of social-emotional skills, particularly in underprivileged communities. The report emphasized that play fostered cooperation, empathy, and self-regulation, which were critical for academic success. Additionally, Maslyk (2022) argued that play encouraged perseverance and risk-taking, allowing children to engage in learning with less fear of failure, leading to better academic outcomes. A study published by Arcagök (2021) found that game-based learning methods positively impacted academic performance across different education levels, as play helped children internalize complex concepts in areas such as mathematics and language development. Phillips and Scrinzi (2018) pointed out that play-based instruction helped foster problem-solving, socialization, and thinking skills, all of which contributed to improved academic performance. In particular, early mathematics skills acquired through play-based learning were strong predictors of future academic success (Christensen, 2020). This view was supported by Lee and Ginsburg (2019), who argued that a strong preschool mathematics curriculum was essential for future academic success. Early exposure to math concepts through play, such as counting games and puzzles, had been shown to develop foundational numeracy skills that were crucial for future achievement.

Furthermore, the study of Moore (2020) on literacy development found that play-based learning could be an effective strategy for teaching phonemic awareness and phonics, leading to improved literacy skills. Similarly, Pyle *et al.* (2018) demonstrated that teachers who integrated play into their instruction saw improved oral language skills and academic performance in their students. Moreover, children engaged in social and pretend play demonstrated better academic readiness and peer interactions, as found by Bulotsky *et al.* (2019). The development of social competence through peer play in preschool helped children transition more easily into formal schooling and contributed to their overall academic success. Likewise, Eggum-Wilkens *et al.* (2019) highlighted that peer play positively correlated with school readiness and academic competence, demonstrating the importance of interactive play in early education. Additionally, studies by Meacham *et al.* (2021) and Lewis *et al.* (2020) found that the relationship between play and language development was critical for academic success. Teachers who fostered high-level language experiences during play helped students develop vocabulary and literacy skills that predicted long-term academic achievement.

METHODOLOGY

The study employed a descriptive-comparative-correlational design. It involved administering pre-tests and post-tests to assess changes in literacy and numeracy skills among the participants. The contextualized play-based learning intervention was designed to address these skills using localized materials and culturally relevant activities. Twenty-seven kindergarten pupils from Tigman Elementary School, Division of Camarines Sur participated in this study during the 2023-2024 school year. The study focused solely on these students to align the intervention with their specific developmental needs. Learners from other schools and grades

were excluded. The intervention included structured and unstructured play-based activities. These activities were designed to foster active learning and engagement while reinforcing numeracy and literacy skills. The materials used were adapted to the cultural and environmental context of the learners. Pre-tests were administered to establish baseline data for the learners' literacy and numeracy skills. Following the intervention, post-tests were given to measure improvements. Additionally, observations and feedback were also collected to assess the practicality and functionality of the intervention. Thus, the study used teacher-made tests as a primary data-gathering tool. Statistical tools such as mean, standard deviation, and paired sample t-tests and Cohens d, were utilized to determine the significant difference in academic performance before and after the implementation of the contextualized play-based learning intervention. The validity of the intervention was also assessed using face, content, practicality, and functionality validity.

RESULTS AND DISCUSSION

This study examined the effect of contextualized play-based learning intervention on the academic performance of kindergarten learners. The study determined the following: (1) The status academic performance of kindergarten learners; (2) design a contextualized play-based learning intervention tailored to the learners' needs; (3) validate the intervention in terms of face and content validity, as well as practicality and functionality; (4) measure the level of academic performance before and after the intervention; (5) determine the significant difference in academic performance before and after the intervention; and (6) evaluate the effectiveness of the intervention in enhancing academic performance. The findings of the study were the following: (1) the level of academic performance of kindergarten pupils based on the pre-test results in Numeracy and Literacy skills was indicated by the performance level of 71.11 in numeracy skills and 68.52 in literacy skills. (2) the design of the contextualized play-based learning intervention in terms of: Learning Objectives aimed to improve literacy skills, focused on phonemic awareness, vocabulary development, and early reading and writing, as well as to enhance numeracy skills by fostering basic mathematical concepts. Moreover, the learning content includes a combination of literacy and numeracy activities that incorporate culturally relevant, locally available materials. While, learning activities are the intervention that combine both structured and unstructured play-based activities. Coupled with learning Assessment wherein pre-and post-tests were conducted to measure improvements in literacy and numeracy skills.; (3) the validity of the play-based intervention was indicated by an overall average weighted mean of 3.76. (4) the level of academic performance of kindergarten learners based on the post-test results showed literacy skills score performance level of 95.56 and, numeracy skills of performance level of 100. (5) the significant difference on the academic performance of kindergarten learners before and after the implementation of the contextualized play-based learning intervention showed a t-statistic of 5.50 p-value of .00 for literacy skills, and the numeracy skills showed t-statistic of 6.14 and a p-value of .00. (6) the effectiveness of the contextualized play-based learning intervention in improving the academic performance of kindergarten learner for literacy skills was indicated by Cohen's d effect size of 1.653 and for the numeracy skills, the Cohen's d effect size of 2.365.

Level of academic performance of kindergarten

Learners based on the pre-test result

Table 1 presents the academic performance of kindergarten learners at Tigman Elementary School, focusing on their numeracy and literacy skills. The test assessed how well the learners performed in these key areas, providing insight into their developmental progress and identifying areas where they may need additional support.

Table 1. Level of academic performance of kindergarten learners

Skills	NI	Mean	SD	PL	Interpretation	Rank
Numeracy	20	14.22	4.86	71.11	Beginning	1
Literacy	20	13.7	4.80	68.52	Beginning	2
Overall	40	27.92	4.83	69.76	Beginning	

Legend:

Value Interpretation

90 – 100 Advanced

85 - 89 Proficient

80 - 84 Approaching Proficiency

75 - 79 Developing

Below 74 Beginning

Design of the contextualized play-based

Learning intervention

The design of the contextualized play-based learning intervention in this study focused on enhancing kindergarten pupils' academic performance through culturally relevant and engaging activities. The intervention's objectives were to improve literacy, numeracy, and social skills by incorporating real-life scenarios familiar to the children, thus making learning more meaningful. The content included foundational academic skills, such as letter recognition, counting, and basic social interactions, presented in a way that aligns with the pupils' experiences. Learning activities were designed to be interactive and play-based, involving storytelling, role-playing, creative arts, and movement games. These activities not only reinforced academic concepts but also supported the holistic development of the pupils by addressing their cognitive, emotional, and physical needs. Assessment method like teacher-made tests was utilized to monitor pupils' progress and ensure the effectiveness of the intervention.

Face Validity: Table 2 revealed the face validity of the play-based intervention. The data assessed the appropriateness of the intervention based on specific indicators. Each indicator was evaluated using a weighted mean, providing a quantitative measure of the perceived effectiveness of the intervention. This analysis ensured that the intervention was deemed suitable by experts and educators at first glance, aligning with its intended educational purposes.

Content validity: Table 2A highlights the findings of the content validity assessment of the play-based intervention. The table lists five key indicators, along with their weighted mean and interpretation:

Practicality and Functionality Validity: The table 2B evaluates the validity of a play-based intervention in terms of practicality and functionality. It considers how effectively the intervention can be applied in real classroom settings while aligning with the curriculum.

Table 2. Validity of play-based intervention in terms of face

Indicators	WM	Interpretation	Rank
Directions are brief, readable, and simple to follow.	4.00	Highly Valid	1
Illustrations are appropriately used.	4.00	Highly Valid	2
Words are properly spelled (free from typographical errors)	4.00	Highly Valid	3
Provides a sufficient number of phonemic activities to help learners improve their knowledge and skills	3.67	Highly Valid	4
Topics are sequentially logical and orderly	3.67	Highly Valid	5
Average Weighted Mean	3.87	Highly Valid	

Legend:

Range	Interpretation
4.21 – 5.00	Very Highly Valid
3.41 – 4.20	Highly Valid
2.61 – 3.40	Moderately Valid
1.81 – 2.60	Less Valid
1.00 – 1.80	Least Valid

Table 2A. Validity of play-based intervention in terms of content

Indicators	WM	Interpretation	Rank
Relevant, interesting, and self-motivating activities	4.00	Highly Valid	1.5
Takes into account the learners' requirements	4.00	Highly Valid	1.5
Provides opportunities for skill development	3.67	Highly Valid	3
Encourages higher-order thinking abilities	3.33	Highly Valid	4.5
Provides sufficient number of phonemic activities to help learners improve their knowledge and skills	3.33	Highly Valid	4.5
Average Weighted Mean	3.67	Highly Valid	

Table 2B. Validity of play-based intervention in terms of practicality and functionality

Indicators	WM	Interpretation	Rank
Easily integrated into daily classroom routines and schedules.	4.00	Highly Valid	1.5
Activities and materials are accessible and feasible for teachers to implement with available resources.	4.00	Highly Valid	1.5
Provides flexible options that allow for differentiated instruction and adaptive teaching strategies.	3.67	Highly Valid	3.5
Activities align with real-world contexts and practical scenarios for better student engagement.	3.67	Highly Valid	3.5
Instructions and guidance are clear and user-friendly for both teachers and students.	3.33	Highly Valid	5
Average Weighted Mean	3.73	Highly Valid	

Table 2C. Summary of validity of play-based intervention

Domains	AWM	Interpretation	Rank
Content	3.87	Highly Valid	1
Practicality and Functionality	3.73	Highly Valid	2
Face	3.67	Highly Valid	3
Overall Average Weighted Mean	3.76	Highly Valid	

The table also examines how well the activities engage students by connecting them to real-world contexts. This ensures the intervention is both feasible for teachers to implement and effective in promoting academic skills, confirming its applicability within typical classroom environments. Table 2C titled "Summary of Validity of Play-Based Intervention" presents the evaluation of a play-based intervention across various domains: content, face, practicality, and functionality. The measures provided include the Average Weighted Mean for each domain and an overall weighted mean summarizing the overall validity. Table 3 shows the "Level of Academic Performance of Kindergarten learners after the Use of Contextualized Play-Based Learning Intervention" for literacy and numeracy following the intervention.

Table 3. Level of academic performance of kindergarten learners after the use of contextualized play-based learning intervention

Aspects	NI	Mean	SD	PL	Interpretation	Rank
Numeracy	20	20	0	100	Advanced	1
Literacy	20	19.11	1.74	95.56	Advanced	2
Overall	40	39.11	0.87	97.76	Advanced	

Table 4 illustrates the results of t-test conducted to evaluate the significant difference between the level of academic performance before and after using the intervention.

The analysis shows a substantial and statistically significant difference in performance levels before and after the intervention.

Table 4. Significant difference in literacy and numeracy of kindergarten before and after using the contextualized play-based learning intervention

Aspects	t-value	P-value	Interpretation
Literacy	5.50	0.00	Significant
Numeracy	6.14	0.00	Significant

Legend:
 p-value ≥ 0.05 Not Significant
 P-value ≤ 0.05 Significant

The table 5, "Effectiveness of the Contextualized Play-Based Learning Intervention on the Academic Performance of Kindergarten Learners," aims to evaluate the impact of a contextualized play-based learning intervention on kindergarten pupils' literacy. The focus is on measuring the effectiveness of the intervention by comparing literacy levels before and after its implementation. Table 6 presents the effectiveness of a contextualized play-based learning intervention on the numeracy skills of kindergarten learners. The intervention aims to enhance numeracy through a dynamic, play-centered approach. The comparison between pre-test and post-test results helps to measure the impact of the

intervention by analyzing both the mean, standard deviation, and effect size (Cohen's d).

Table 5. Effectiveness of the contextualized play-based learning intervention on the academic performance of kindergarten learners

Test	M	SD	Cohens D'	Int.
Pre	13.704	4.802	1.653	LE
Post	19.111	1.739		

Legend:

Level of effect	Range	Int. - Interpretation
Small effect (SE)	0.0– 0.49	m - mean
Medium effect (ME)	0.5 – 0.79	sd – standard deviation
Large effect (LE)	more than 0.8	

Table 6. Effectiveness of the contextualized play-based learning intervention on the numeracy of kindergarten learners

Test	M	SD	Cohens D'	Int.
Pre-Test	14.222	4.886	2.365	
Post-Test	20.000	0.000		large effect

Conclusion

This study confirms that contextualized play-based learning significantly improves the academic performance of kindergarten learners, particularly in literacy and numeracy. The findings suggest that integrating local culture and play into early childhood education can create more effective and engaging learning experiences. Further research is recommended to explore the long-term effects of CPBL interventions and their scalability in other educational settings.

Recommendations

The contextualized play-based learning intervention be adopted more widely in kindergarten settings. Schools should consider integrating this intervention into their regular curriculum, given its practicality and functionality. Teacher training programs should also be conducted to familiarize educators with the intervention's materials and strategies, ensuring effective implementation. Additionally, continuous monitoring and evaluation should be conducted to refine and adapt the intervention, addressing any challenges that may arise. Finally, further research could explore the long-term impact of this intervention on students' academic and social development, as well as its potential application in diverse educational contexts.

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