UTILIZATION OF PLAY-BASED LEARNING AND ITS IMPACT ON PUPIL PERFORMANCE: INSIGHTS FROM THE DIVISION OF CAMIGUIN, NORTHERN MINDANAO, PHILIPPINES

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Abstract

This study investigated the extent of utilization of play-based learning strategies and their relationship with academic performance among Grade 1 to 3 pupils in select public elementary schools in the Division of Camiguin. Anchored on Vygotsky's Sociocultural Theory of Cognitive Development, the research employed a descriptive-correlational design using both quantitative and qualitative approaches. A modified survey questionnaire and casual interviews were utilized to collect data from 42 teachers, while academic performance data of 785 pupils during the second quarter of SY 2024–2025 were gathered. Descriptive statistics, Pearson correlation, Kruskal-Wallis H test, were used to analyze the data. Results showed a high extent of play-based learning implementation (Mean = 3.58, SD = 0.41), especially in child-centered planning and integration with curriculum goals. Academic performance was rated as Very Satisfactory (M = 86.37, SD = 2.60), with over 65% of pupils performing at Very Satisfactory to Outstanding levels. A positive significant but low correlation ($r = 0.056$, $p < 0.05$) was found between the extent of play-based learning and academic performance. Multiple linear regression analysis revealed that teacher demographics such as age, teaching experience, and educational attainment did not significantly predict the extent of play-based learning utilization. The study concludes that play-based learning contributes to pupils' academic performance and recommends continuous training and support for its effective implementation. It further advocates institutional support to address resource and classroom environment challenges.

Keywords: *play-based learning, academic performance, early childhood education, Vygotsky's Theory, Teacher Practice*

Introduction

Play-based learning is an educational method that uses play as the primary mode of instruction. It focuses on active involvement, exploration, and creativity, enabling children to develop critical thinking, social skills, and problem-solving abilities through both structured and unstructured activities. This approach encourages children to interact meaningfully with their surroundings, peers, and teachers, thereby promoting curiosity and discovery.

Play-based learning is a pedagogical approach that merges purposeful play with curriculum-based objectives, allowing children to explore concepts through enjoyable, developmentally appropriate activities (Boysen, 2022; Roba, 2024); Mead, 2017). Rooted in social constructivist theory, it emphasizes active, social, and experiential learning that fosters cognitive, social, and emotional growth (Lin et al., 2025; Li & Kangas, 2024; Nampijja et al., 2024). Through activities such as role-playing, building, and problem-solving, children enhance executive functions, creativity, and language skills (Zhang et al., 2025; Charifa & Apriliani, 2025); Cankaya et al., 2023).

Many educators now view play-based learning as a valuable means to support young children's academic, social, and emotional development. This is done through leveraging children's natural inclination to engage in play, supports the development of core literacy and numeracy competencies, fostering creativity, collaboration, and problem-solving skills (Makeleni & Ndu, 2025; Parker et al., 2025). Recent studies further emphasize its potential to enhance academic outcomes by creating meaningful, engaging, and developmentally appropriate learning experiences.

Several studies underscore the advantages of play-based learning, including increased motivation, deeper engagement, and improved academic performance in literacy and numeracy (Louw & Claassens, 2025; Abbacan et al., 2023). It also contributes significantly to emotional intelligence, enabling children to develop empathy, cooperation, and conflict resolution skills (Drakopoulou & Kampeza, 2024; Adams et al., 2024).

Recent research shows that play-based learning effectively enhances cognitive and academic growth across various global contexts. For instance, Sawyers & Sawyers, (2021) found that play-centered techniques improve literacy and numeracy outcomes, while Kassenkhan et al. (2025) identified significant academic gains among students engaged in guided play, which fosters problem-solving and student involvement. These findings underscore the global relevance of play-based learning and highlight the importance of adapting these strategies to local educational contexts.

Across Southeast Asia, early childhood and early-grade reforms increasingly emphasize learner-centered and play-based approaches as part of regional commitments to holistic, inclusive, and skills-oriented education. The ASEAN Early Childhood Care, Development and Education (ECCDE) Quality Standards call for developmentally appropriate, child-centred learning experiences that support children's physical, cognitive, social, and emotional growth across member states (ASEAN, 2017). Complementary regional frameworks such as the Southeast Asian Guidelines for Early Childhood Teacher Development and Management and the ECCE Teacher Competency Framework for Southeast Asia further position play-based, interactive pedagogy as core teacher

competencies needed to deliver quality early learning (SEAMEO, 2016). Recent ASEAN communication also highlights early childhood care and education (ECCE) as a regional priority, noting that many ASEAN countries are working to expand access to child-centred and play-based curricula as part of broader learning recovery and human capital strategies (Serrano, 2024).

At the country level, several ASEAN members including Malaysia, Indonesia, Thailand, the Philippines, Cambodia, Lao PDR, Myanmar, and Viet Nam have expanded early childhood education and articulated child-centered or play-based principles in policy. Evidence from the SEA-PLM 2019 regional assessment shows that ECE participation is now widespread in some countries (e.g., Malaysia and Viet Nam) but still uneven in others, with substantial disparities by socio-economic status and locality and limited information on the quality of day-to-day pedagogy (Marivin et al., 2025). Regional reviews of early childhood education in Southeast Asia similarly point to mixed progress: while access has improved, issues of quality, inclusiveness, and classroom practices remain, especially in low-resource and rural settings (Iwabuchi, 2024).

Empirical classroom-level studies in Asia underscore how exam-driven cultures, large class sizes, and strong expectations for teacher-directed instruction often constrain the implementation of play-based and learner-centred pedagogies, even when these are mandated in policy (Bautista et al., 2021). For instance, research in Malaysian preschools documents teachers' positive attitudes toward play-based learning but also highlights tensions with academic pressures and parental expectations (Bautista et al., 2023). A decade scoping review of learner-centred teaching in Southeast Asian classrooms likewise shows that, although learner-centred strategies are emerging, teachers still struggle with resource constraints, uneven professional development, and entrenched traditional practices (Bulusan et al., 2025).

In the Philippines, recent reforms in the K-12 curriculum underscore a shift toward student-centered education (Bulusan et al., 2025). While lecture-based methods remain prevalent, an increasing number of educators are incorporating interactive and play-based strategies into their instruction. Despite challenges such as limited resources and time constraints, teachers are exploring these alternative methods to better engage students and enhance learning outcomes.

In line with the United Nations Sustainable Development Goal (SDG) 4 which seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2017) play-based learning emerges as a promising approach for fostering quality, child-centered education. SDG 4 calls for innovative strategies that lay the groundwork for lifelong learning. Thus, in the Philippine context, examining how play-based learning can advance academic achievement is timely and relevant.

The successful implementation of play-based strategies often depends on various teacher-related factors. Research suggests that younger and less experienced teachers are more inclined to adopt play-based methods, while more veteran educators tend to prefer traditional approaches (Ciman & Ofiesh, 2021). Moreover, the effectiveness of play-based

learning is strongly linked to the availability of professional development and the capacity to align play activities with specific learning goals (Skene et al., 2022; Yeng & Tatsi, 2024). However, barriers such as large class sizes, limited instructional resources, and the persistence of conventional pedagogical mindsets continue to impede its broader adoption (Mellado, 2024; Lai & Hu, 2025).

This study is grounded in Vygotsky's Sociocultural Theory of Cognitive Development, which posits that learning is a social process shaped by interaction and cultural context. Central to this theory is the concept of the Zone of Proximal Development (ZPD), the gap between what a child can do independently and what they can accomplish with guidance (Vygotsky, 1978; Xi & Lantolf, 2021). Within this framework, play is a key tool for development, allowing children to explore, communicate, and solve problems in structured yet flexible environments (Bodrova & Leong, 2024). Guided play enables teachers to scaffold learning experiences that promote critical thinking, language development, and social-emotional skills. As such, play-based learning becomes a developmentally appropriate instructional approach that supports both academic performance and holistic growth.

Although global literature increasingly demonstrates the value of play-based learning, evidence from Southeast Asian contexts remains limited, particularly in the Philippines and nearby ASEAN countries where traditional classroom practices still dominate. Existing studies have mainly focused on preschool settings, leaving a gap in understanding how play-based approaches influence learning in the early grades of elementary education. This study addresses this gap by examining how play-based learning is utilized by teachers and how it relates to pupil performance in a Philippine public-school division.

This study aims to examine the extent of utilization of play-based learning strategies in elementary instruction and its association with pupils' academic performance. It further investigates whether selected teacher-related demographic variables specifically age, number of years in teaching, and highest educational attainment influence the implementation of play-based learning in the classroom. Recognizing the potential of play-based pedagogies to enhance learner engagement and achievement, this research seeks to generate empirical insights that may inform future instructional practices and educational policy in the elementary education context.

Materials and Methods

Research Design

This study employed a descriptive-correlational research design to assess the extent of utilization of play-based learning strategies among elementary school teachers and its relationship with pupils' academic performance. The descriptive aspect aimed to document the demographic profile of teachers and the extent to which play-based learning is integrated into classroom instruction, while the correlational component examined the relationship between these instructional practices and students' academic outcomes during the second quarter of School Year 2024–2025. This design was appropriate as it allowed the researcher to explore existing conditions, behaviors, and relationships without

manipulating variables. Data were collected through structured questionnaires for teachers and academic performance records for pupils.

Research Environment

This study was conducted among public elementary school teachers across the entire Division of Camiguin. The division comprises five municipalities, namely: Catarman, Guinsiliban, Sagay, Mambajao, and Mahinog, each hosting multiple public elementary schools. Respondents were selected from all five municipalities to ensure comprehensive representation of the division.

Participants and Sampling

The study's respondents were conducted to all Grade 1-3 elementary school teachers in the Division of Camiguin. They were selected regardless of their teaching subjects, whether they were teaching Grade level 1-3. The study employed a census sampling method to ensure comprehensive coverage. This approach aimed to capture teachers' experiences across various subjects, ensuring a holistic understanding of the use of play-based learning in these grade levels.

Instrumentation

The research instrument used in this study is a modified survey questionnaire adapted from the case study conducted by Radzi et al. (2023), titled "A Case Study on the Use of Play-Based Learning in a Malaysian Preschool." The original study provided key insights into the practical application of play-based learning strategies, which was the foundation for developing the questionnaire. To ensure contextual relevance, the researcher reviewed and adapted the core concepts from the case study to suit the local educational setting and target respondents.

The final questionnaire consists of two main parts: Part I collects the respondents' demographic information, such as age, years of teaching experience, and educational attainment. Part II focuses on indicators measuring the extent of play-based learning strategies implemented by teachers. Items in this section were refined based on the study's specific objectives and variables, incorporating the researcher's understanding of the context. The instrument underwent a systematic development process to ensure content validity and reliability, making it an appropriate tool for gathering data aligned with the study's goals.

Validity and Reliability

The researcher involved subject matter experts, including Education Program Supervisors, District-in-Charge, and Master Teachers, to assess its content and provide feedback. These experts reviewed the questionnaire and evaluate each indicator, categorizing them as retained, modified, or reject. The goal is to ensure the research instrument was valid and relevant to the study's objectives.

The final indicators were refined and adjusted following the experts' feedback. A pilot test was conducted in a separate district, specifically in Mambajao District, through face-to-face administration to establish the questionnaire's reliability. The data collected during the pilot test was analyzed using Cronbach's Alpha coefficient to measure internal

consistency. A Cronbach's Alpha coefficient value of 0.70 was obtained, indicating that the instrument has adequate internal consistency.

Data Collection Procedure

Before conducting the study, the researcher sought and obtained formal approval from the Schools Division Superintendent (SDS) of the Division of Camiguin, as well as from the school heads of the participating public elementary schools. Approval letters from both the SDS and school heads were presented to the respondents to establish the legitimacy of the research. Following this, the participants were informed about the purpose, scope, and voluntary nature of the study, and were asked to sign an informed consent form prior to the administration of the research questionnaire. After securing the necessary ethical clearances and consent, the researcher personally visited each school to conduct data collection through face-to-face interactions. This included distributing and retrieving questionnaires, and when necessary, conducting brief interviews to clarify responses and ensure the completeness and reliability of the data gathered.

Data Analysis

Scoring Procedure for the Extent of Play Based Learning

The researcher used a Four-Point Likert Scale to score the statements or indicators on how much play-based is utilized in teaching. Table 1 presents the scoring guide used to assess the extent of play-based learning utilization among teachers. These scores help categorize how frequently play-based learning approaches are employed in the classroom, reflecting their impact on academic performance.

Table 1

Scale for Interpreting the Extent of Play-Based Learning Utilization

Arbitrary Value	Statistical Limits	Descriptive Equivalent	Interpretation
4	3.26-4.00	High Extent	Play-Based Learning is always utilized
3	2.51-3.25	Moderate Extent	Play-Based Learning is sometimes utilized
2	1.76-2.50	Less Extent	Play-Based Learning is rarely utilized
1	1.00-1.75	No Extent	Play-Based Learning is not utilized

Scoring Procedure for Academic Performance of Pupils

Table 2 presents the Grading Scale and Performance Descriptors used to interpret pupils' academic performance. This grading scale is anchored on DepEd Order No. 8, s. 2015, "*Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program."* This order provides the official standards and descriptors for assessing and reporting learner performance in all public elementary and secondary schools in the

Philippines. The descriptors aim to provide clear, consistent, and developmentally appropriate interpretation of learners' progress and mastery of learning competencies.

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Table 2
Grading Scale and Performance Descriptors for Academic Achievement

Grading Scale	Descriptor
90-100	Outstanding
85-89	Very Satisfactory
80-84	Satisfactory
75-79	Fairly Satisfactory
Below 75	Did Not Meet the Expectations

**Source: DepEd Order No. 8, s. 2015*

Ethical Considerations

The researcher is committed to maintaining ethical integrity by ensuring informed consent from all potential participants. This involves providing comprehensive information about the study's objectives, procedures, risks, benefits, confidentiality measures, and the voluntary nature of participation. Participants were explicitly informed of their right to withdraw without facing any negative consequences. Additionally, to safeguard confidentiality, all personal data was anonymized and securely stored, accessible only to authorized members of the research team.

Results and Discussion

Profile of the Respondents

Table 3 summarizes the respondents' profiles in terms of age, teaching experience, and educational attainment, highlighting a predominantly mature and experienced teaching workforce. Most respondents are aged 41 and above (69.1%) and have over 21 years of teaching experience (40.5%), reflecting a seasoned group of educators with established practices. A majority (71.4%) have earned master's units, indicating a strong pursuit of professional growth. These characteristics align with national trends reported by Sinsay-Villanueva et al., (2025) in a PIDS discussion paper series which show that Filipino teachers are increasingly experienced and academically qualified. However, while experience and advanced education contribute to pedagogical competence, integrating innovative strategies like play-based learning may require targeted professional development. Continuous training is necessary to bridge theory and practice, especially for veteran teachers, ensuring the effective implementation of modern, student-centered approaches in the classroom. Extent of utilization of play-based learning among teachers?

Table 3. Profile of the Respondents (N=42)

Variable	Counts	Percentage (%)
Age (years)		
26-30	3	7.10
31-40	10	23.80
41-50	17	40.50
51 and above	12	28.60
Total	**42**	**100.00**
Number of Years in Teaching (years)		
1-5	6	14.30
6-10	7	16.70
11-15	3	7.10
16-20	9	21.40
21 and above	17	40.50
Total	**42**	**100.00**
Highest Educational Attainment		
Bachelor's degree	8	19.10
With Master's units	30	71.40
Master's degree	4	9.50
Total	**42**	**100.00**

Extent of Utilization of Play-Based Learning

Table 4 presents the extent to which teachers utilized play-based learning during the school year 2024-2025. The findings reveal an overall mean of 3.58 with a standard deviation of 0.41, indicating that respondents consistently implement play-based learning to a high extent. The low standard deviation suggests that responses are closely clustered, showing a shared commitment among teachers in integrating play-based strategies into their teaching practices. This strong utilization aligns with global education trends emphasizing active, student-centered learning approaches.

Among the indicators, the highest-rated statement, "I create a child-centered learning environment by allowing students' interests to guide play-based activities" (Mean = 3.69, High Extent), highlights the teachers' emphasis on student-driven learning. This finding is supported by Massengale (2020), who argue that child-centered approaches enhance engagement and motivation, leading to better academic outcomes. Similarly, Vygotsky's (1978) constructivist theory suggests that when students take an active role in their learning, they develop a deeper understanding of concepts. Insights from the *casual interview reinforce this, as teachers observed that students displayed higher enthusiasm and curiosity when play activities were tailored to their interests*.

Several indicators, each with a mean of 3.64, further emphasize the strong integration of play-based learning into academic instruction. These include statements on aligning play with curriculum goals, using formal and informal assessments, catering to different learning styles, fostering critical thinking, and reflecting on teaching practices. Research by Tatsi et al., (2025) suggests that play-based learning strengthens both cognitive and social development while supporting curriculum objectives. *The casual interview results echo this, with teachers reporting that students demonstrated improved problem-solving skills and collaboration when engaged in structured play activities.* Furthermore, Cannady (2024) found that play-based learning fosters social-emotional growth, which teachers in the discussion also noted as a key benefit in their classrooms.

On the other hand, the lowest-rated indicator, "I have set up my classroom environment to encourage play, providing materials and space for play-based activities" (Mean = 3.38, High Extent), suggests that physical space and resources may pose challenges to effective implementation. According to Kausar et al. (2024), a well-structured play environment significantly enhances children's learning experiences. *Teachers in the casual interview mentioned the limitations such as restricted classroom space and inadequate play materials, highlighting the need for better school support in optimizing learning environments.* Another relatively lower-rated indicator, "I collaborate with my colleagues to design and implement play-based learning activities" (Mean = 3.45, High Extent), suggests that while teachers actively use play-based learning, there may be fewer opportunities for shared planning and teamwork. Aldhilan et al., (2024) emphasizes that professional learning communities can enhance teachers' ability to implement innovative teaching strategies effectively. Strengthening collaboration through structured team planning sessions and shared best practices could further enhance play-based learning integration.

Overall, the results indicate that teachers actively and consistently utilize play-based learning in their classrooms, particularly by fostering child-centered learning environments and aligning play with academic goals. However, challenges related to classroom space, access to materials, and limited collaboration among teachers may hinder full implementation. Addressing these barriers through improved learning environments, resource allocation, and professional development programs that encourage teamwork can further optimize the effectiveness of play-based learning in early education.

Table 4.
Extent of Utilization of Play-Based Learning Among Teachers (N=42)

Indicators	Mean	Qualitative Description
I create a child-centred learning environment by allowing students' interests to guide play-based activities.	3.69	High Extent
I integrate play-based learning with the academic curriculum to help students meet learning goals.	3.64	High Extent
I use both formal and informal assessments to evaluate students' learning during play-based activities.	3.64	High Extent
I offer a variety of play activities that cater to different learning styles and	3.64	High Extent

abilities in my classroom.		
I use play-based learning to foster critical thinking and problem-solving among my students.	3.64	High Extent
I regularly reflect on my play-based teaching practices and adjust to improve student learning outcomes.	3.64	High Extent
I use play-based learning to help students develop social skills like cooperation, sharing, and communication.	3.62	High Extent
I observe high levels of student engagement and enthusiasm during play-based learning activities.	3.60	High Extent
I regularly plan and prepare for play-based learning activities as part of my teaching process.	3.57	High Extent
I have participated in professional development programs or training on play-based learning strategies.	3.57	High Extent
I use different types of play, such as free play, guided play, and structured play, to support learning objectives.	3.55	High Extent
I feel confident in my ability to implement play-based learning strategies in my teaching.	3.55	High Extent
I regularly incorporate play-based activities into my daily lesson plans.	3.48	High Extent
I collaborate with my colleagues to design and implement play-based learning activities in the classroom.	3.45	High Extent
I have set up my classroom environment to encourage play, providing materials and space for play-based activities.	3.38	High Extent
Overall Mean **Standard Deviation**	3.58 0.41	High Extent

Academic performance of pupils

Table 6 presents the academic performance of pupils during the second quarter of the school year 2024-2025. The findings indicate that most of the pupils (65.10%) achieved Very Satisfactory (85-89) to Outstanding (90-100) ratings, with an overall average of 86.37 (SD = 2.60), classified as Very Satisfactory based on DepEd Order No. 8, series of 2015. This suggests that most students are meeting or exceeding the expected learning competencies, demonstrating strong academic performance.

The results highlight the effectiveness of current instructional strategies, particularly the integration of play-based learning, which has been linked to improved student engagement and comprehension. Studies by Sawyer & Sawyers (2021) and Stidham (2022) emphasize that active, play-centered approaches enhance cognitive skills, motivation, and knowledge retention, which may have contributed to the high performance observed in this study. Furthermore, the casual interview with teachers revealed that students exhibited higher participation and enthusiasm in lessons that incorporated play-

based strategies, reinforcing findings from Adams et al. (2024) that playful learning promotes academic success.

On the other hand, a small percentage of pupils (11.21%) were classified as Fairly Satisfactory (75-79) or Did Not Meet Expectations (Below 75). This group may require additional instructional support and targeted interventions to enhance their learning outcomes. According to DepEd (2015), differentiated instruction and remedial programs are essential in addressing learning gaps among struggling students. Teachers in the casual interview noted that those who performed below expectations often had difficulties with self-regulation and independent learning, suggesting a need for more structured guidance and individualized learning plans.

Overall, the results imply that most pupils are benefiting from effective teaching methodologies, particularly play-based learning, which fosters both academic achievement and holistic development. However, to further enhance learning outcomes, educators should consider strengthening support mechanisms for lower-performing students through remedial instruction, personalized learning strategies, and increased parental involvement. These efforts can help ensure that all learners achieve their full academic potential.

Table 5

Pupils' Academic Performance during the Second Quarter School Year 2024-2025.

Grading Scale	Description	Frequency	Percentage (%)
90-100	Outstanding	306	38.98
85-89	Very Satisfactory	205	26.11
80-84	Satisfactory	186	23.70
75-79	Fairly Satisfactory	79	10.06
Below 75	Did Not Meet the Expectations	9	1.15
Total		**785**	**100.00**
Average	**86.37, SD= 2.60, Very Satisfactory**		

Relationship between the extent of utilization of play-based learning and academic performance of pupils

Table 6 reveals that there was a significant relationship (r =0.056, p=0.00< 0.05) between the utilization of play-based learning and academic performance among pupils using two tailed tests. The coefficient r-value 0.056 denotes a low positive correlation in two-tailed tests. The Coefficient of determination r^2 =0.0032 tells that 32 percent of the variation in academic performance among pupils is explained by the variation in the utilization of play-based learning while 99.68 percent is unexplained. However, since the *p-value* is lesser than 0.05 level of significance, it still means that both variables, utilization of play-based learning and academic performance among pupils are lowly associated. It further means that as intervention of utilizing play-based learning strategy will be sustained to improvement, academic performance among pupils will likely improve

Despite the low correlation value, the findings imply that play-based learning can still serve as a meaningful pedagogical approach in improving student engagement and

comprehension. Research by Taylor & Boyer (2020) emphasizes that play-based learning fosters cognitive flexibility and problem-solving skills, which are essential for academic success. Similarly, Roskos (2017) found that structured and guided play enhances foundational literacy and numeracy skills, contributing to long-term academic benefits. These studies align with the current findings, reinforcing the idea that play-based strategies positively impact learning outcomes, though the effects may be limited in scope.

The statistical results also suggest that play-based learning should not be the sole approach to improving academic performance but should be integrated with other instructional strategies. Teachers may need to combine play-based activities with direct instruction, differentiated learning, and assessment-driven strategies to optimize student outcomes. Furthermore, *the casual interview with teachers revealed that while play-based learning increases student motivation and engagement, its effectiveness in academic performance depends on how well it is aligned with curricular goals and structured learning objectives.*

Thus, while the study establishes a statistically significant but low correlation, it still supports the continued use of play-based learning in classrooms. The findings suggest that strengthening teacher training, refining implementation strategies, and ensuring alignment with learning standards may further enhance the impact of play-based learning on academic performance. Future research may explore additional moderating factors, such as classroom environment and teacher expertise, to better understand how play-based learning can be maximized for improved student achievement**.**

Table 6

Relationship Between the Utilization of Play-based Learning and Academic Performance among Pupils

Comparison	r	r^2	t-stat	p-value	df	Statistical Decision	Interpretation
Play-Based Learning and Academic Performance	0.05	0.003	206.4	0.00	41	Reject Ho	Significant

alpha= 0.05

Influence of Teacher Demographics on the Utilization of Play-Based Learning

Table 7 presents the results of the Multiple Linear Regression (MLR) analysis conducted to determine whether teacher demographic variables—age, number of years in teaching (NOYT), and highest educational attainment (HEA)—significantly influence the extent of utilization of play-based learning. The model yielded an Adjusted R^2 of 16.3%, indicating that only 16.3% of the variance in the extent of utilization of play-based learning can be explained by these three predictors. This suggests that a substantial portion of the variability is influenced by other factors not included in the model, such as teacher attitudes, access to resources, or institutional support.

Individually, none of the demographic variables were found to be statistically significant predictors at the 0.05 level. Age had a negative coefficient of -0.480 ($p = 0.739$), implying that as teachers get older, there is a slight decline in the use of play-based

strategies, although the relationship is not statistically meaningful. Similarly, the number of years in teaching showed a negative coefficient of -0.965 (p = 0.252), suggesting that more experienced teachers may tend to rely less on play-based strategies, yet the effect is also not significant. Highest educational attainment had a small positive coefficient of 0.218 (p = 0.907), indicating a negligible and non-significant influence on the extent of utilization.

The partial eta squared value of 0.0195 indicates a very small effect size, further confirming that these demographic characteristics have a minimal impact on the dependent variable. These results align with previous studies, such as those by Lee et al. (2025), which emphasize that the effective use of play-based learning is more likely influenced by professional development, access to resources, and school-level support rather than teacher age, experience, or formal academic credentials. Insights from the casual interview with teachers also echoed this sentiment, as many respondents noted that administrative backing, classroom conditions, and availability of play materials had a more direct influence on their teaching practices.

Generally, while demographic characteristics may shape a teacher's general teaching orientation, they are not sufficient predictors of play-based learning utilization. These findings highlight the importance of looking beyond individual profiles and focusing on broader contextual and institutional factors to strengthen the implementation of play-based learning strategies in schools.

Table 7

Multiple Linear Regression Analysis of the Variables Influencing the Utilization of Play-based Learning Among Teachers

Dependent Variable: **Extent of Utilization of Play-based Learning**

Demographic Variables	Coefficient	Standard Error	p -value	Effect size (partial eta squared)
Constant	58.049	5.720	<.001	0.0195
Age	-0.480	1.431	0.739	
Number of years in teaching	-0.965	0.830	0.252	
Highest Educational Attainment	0.218	1.848	0.907	
Adjusted R^2(%)	**16.3**			
Loglikelihood ratio	**-107.13**			

Conclusions

The study found that teachers, predominantly are in their mid to late career stages and with advanced academic qualifications. They demonstrate a high extent of utilizing play-based learning strategies in the classroom. Despite the maturity and experience of the teaching workforce, the statistical results indicate that demographic factors such as age, years in teaching, and educational attainment do not significantly influence the extent of play-based learning integration. Nonetheless, the approach has shown a statistically significant, albeit low, positive correlation with pupils' academic performance, affirming its relevance in promoting student engagement and achievement. Teachers strongly

implement child-centered and curriculum-aligned play strategies, though constraints such as limited space, resources, and collaboration opportunities remain.

The study relied on self-reported data from teachers, which may be subject to social desirability bias despite confidentiality. The correlation design prevents causal interpretation; therefore, findings indicate associations rather than direct effects. The sample is limited to one school division in Northern Mindanao, which may restrict generalizability to other regions or ASEAN contexts. Future studies may include experimental or longitudinal designs, classroom observations, and multi-site sampling to strengthen evidence on the effectiveness of play-based learning.

Acknowledgment

The researcher extends sincere gratitude to Camiguin Polytechnic State College for the institutional support and encouragement that made this study possible. Deep appreciation is also given to the Department of Education, Division of Camiguin for granting the necessary permission and assistance during data collection. Special thanks are due to the teacher-respondents, whose valuable insights and active participation greatly contributed to the success of this research. Their cooperation and generosity of time are truly commendable.

Disclosure: Use of AI Tools

AI tools, including OpenAI's ChatGPT, were used in this research to support idea development, enhance clarity, and improve the organization of the text. These tools functioned solely as aids to the writing process. All content, analysis, and final decisions were made by the researcher, who ensured that academic integrity and critical oversight were upheld throughout the study.

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