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Play-based learning and cognitive development of kindergarten pupils in San Pablo, Isabela

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ABSTRACT

Play-based learning is widely recognized as an effective pedagogical approach that enhances young learners' cognitive development through meaningful and engaging activities. However, limited empirical evidence exists on its specific implementation and impact on the cognitive development of kindergarten pupils in San Pablo, Isabela. This study examined the implementation of play-based learning and its relationship with cognitive development from the perspective of fifty kindergarten teachers using a descriptive-correlational design. Data were collected through a validated questionnaire and analyzed using descriptive statistics and Pearson correlation. Findings revealed that play-based learning is generally practiced and positively perceived, particularly in fostering creativity, critical thinking, and memory retention. Although challenges such as resource quality and training opportunities were noted, these were not considered severe barriers. A significant positive relationship was found between play-based learning and cognitive development. The study concludes that strengthening resources, teacher training, and stakeholder support can further enhance the effectiveness of play-based learning.

Keywords: Play-based learning, cognitive development, kindergarten pupils, teacher perceptions, early childhood education, instructional strategies.

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INTRODUCTION

Play-based learning is a pedagogical approach that uses play as the primary mode of learning for children. This method has been extensively researched for its potential to enhance cognitive development, social skills, and overall academic performance among young learners (Azmi & Ha, 2024; Mauro, 2024). The core idea is that children learn best when they are engaged in activities that are enjoyable and meaningful to them (Ares & Gorrell, 2002; Neville, 2013), thereby promoting deeper understanding and retention of knowledge.

Globally, the significance of play-based learning has been recognized in various educational frameworks. Research indicates that play-based learning not only supports cognitive development but also fosters creativity, problem-solving skills, and emotional regulation (Şirolu & Özdemir, 2024; Zhanar & Çoban, 2024). Countries such as Finland and

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New Zealand have successfully integrated play-based learning into their early childhood education systems, demonstrating improved educational outcomes (Fung & Chung, 2024).

In the Philippines, the Department of Education (DepEd) has acknowledged the importance of play in the early stages of learning. The Enhanced Basic Education Act of 2013 (Republic Act No. 10533) emphasizes the need for kindergarten education that incorporates play-based learning to prepare children for formal schooling. This approach aligns with the K to 12 curriculum, which aims to promote holistic development and lifelong learning opportunities for Filipino children.

Within the Cagayan Valley Region, DepEd has been proactive in promoting innovative teaching strategies, including play-based learning. Various initiatives have been implemented to integrate culturally relevant and developmentally appropriate practices in early childhood education. These efforts are essential in addressing the unique educational needs of children in the region.

Due to its geographical and socio-economic conditions, the Schools Division of Isabela faces unique challenges in delivering quality education. Despite these challenges, there has been a concerted effort to enhance early childhood education through play-based learning. Local educational programs have been adapted to incorporate traditional games and activities that are familiar to children and culturally significant.

In San Pablo, a municipality in Isabela, the implementation of play-based learning is particularly significant. Teachers have observed that incorporating play in the classroom improves pupils' engagement and cognitive development. However, more structured support and training are needed for teachers to fully maximize the benefits of this approach.

While substantial evidence supports the benefits of play-based learning, limited research exists on its specific impact on the cognitive development of kindergarten pupils in San Pablo, Isabela. Understanding teachers' perceptions and experiences in implementing play-based learning can provide valuable insights into the challenges and opportunities within this context.

This study is anchored in Jean Piaget's Theory of Cognitive Development and Lev Vygotsky's Sociocultural Theory. These two theoretical perspectives provide a comprehensive framework for understanding the role of play-based learning in children's cognitive development.

Jean Piaget's theory emphasizes that children go through distinct stages of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational (Piaget, 1952). In the context of play-based learning, Piaget's theory suggests that play is essential for children's cognitive growth because it allows them to explore, experiment, and understand the world around them.

Through play, children engage in the processes of assimilation and accommodation, which are crucial for cognitive development. For instance, when children play with building blocks, they are not merely stacking objects but also learning concepts such as balance, gravity, and spatial relationships. These hands-on experiences enhance their ability to think logically and solve problems.

Lev Vygotsky's sociocultural theory highlights the importance of social interaction and cultural context in cognitive development (Vygotsky, 1978). According to Vygotsky, learning is inherently a social process, and children develop cognitively through guided interactions with more knowledgeable individuals, such as teachers and peers.

This theory introduces the concept of the Zone of Proximal Development (ZPD), which refers to the gap between what a child can do independently and what they can accomplish with guidance. Within Vygotsky's framework, play-based learning becomes a collaborative process where children are supported in reaching higher levels of cognitive functioning.

For example, when children engage in role-playing activities in the classroom, they learn language, social norms, and problem-solving skills through interaction with others.

The rural setting of San Pablo, Isabela offers unique opportunities for play-based learning. Traditional games and community participation play a significant role in children's education. Teachers can utilize these cultural resources to create meaningful and contextually relevant play-based learning experiences aligned with Piaget's and Vygotsky's theories.

Understanding teachers' perceptions of play-based learning within these theoretical frameworks will provide valuable insights into how such methods can be effectively integrated into local educational practices to enhance the cognitive development of young learners.

Statement of the problem

This study examined the implementation and effectiveness of play-based learning on the cognitive development of kindergarten pupils in San Pablo, Isabela from the perspective of teachers. Specifically, it sought to answer the following questions:

1. What are the current practices in implementing play-based learning in schools in San Pablo, Isabela in terms of the types of play-based activities integrated into the curriculum, the frequency and duration of play-based learning sessions, and the resources and materials used for play-based learning?
2. What are the teachers' perceptions of the effectiveness of play-based learning on the cognitive development of kindergarten pupils in terms of enhancing critical thinking and problem-solving skills, improving memory and retention of information, and fostering creativity and imagination?
3. What challenges do teachers face in implementing play-based learning in San Pablo, Isabela in terms of the availability of adequate resources and materials, the training and preparedness of teachers, and the support from school administration and parents?
4. What strategies do teachers suggest to improve the implementation of play-based learning in terms of increasing access to resources and materials, providing professional development and training for teachers, and enhancing support from school administration and parents?
5. Is there a significant relationship between the implementation of play-based learning and the cognitive development of kindergarten pupils as perceived by teachers in San Pablo, Isabela?

METHODOLOGY

This study utilized both descriptive and correlational research designs to examine the implementation of play-based learning and its relationship with the cognitive development of kindergarten pupils in San Pablo, Isabela. The descriptive component focused on identifying the current practices of teachers in implementing play-based learning, their perceptions of its effectiveness, the challenges they encounter, and the strategies they propose to improve its implementation. The correlational aspect examined the relationship between the implementation of play-based learning and the cognitive development of kindergarten pupils as perceived by teachers.

The research was conducted in kindergarten schools within the Schools Division of Isabela, specifically in the municipality of San Pablo. The respondents of the study were fifty kindergarten teachers, selected through simple random sampling to ensure that each teacher had an equal chance of participation and that the sample fairly represented the population.

Data were gathered using a self-designed survey questionnaire that was validated by a panel of experts, including the thesis adviser, statistician, dean, and faculty members. The instrument was pilot-tested with non-respondent teachers to ensure clarity, validity, and reliability before it was used in the actual data collection.

The data gathering process began with securing permission from the Schools Division Superintendent of Isabela. After selecting the respondents, the researcher administered the questionnaires personally, explained the purpose of the study, and collected the completed responses. The collected data were then organized and analyzed.

For data analysis, the study used the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were applied to summarize teachers' practices, perceptions, challenges, and suggested strategies related to play-based learning. Meanwhile, Pearson correlation analysis was used to determine whether a significant relationship exists between the implementation of play-based learning and the cognitive development of kindergarten pupils as perceived by teachers.

RESULTS AND DISCUSSION

Current practices in the implementation of play-based learning

The findings indicate that teachers in San Pablo, Isabela generally implement play-based learning practices at an agreeable level, suggesting that such pedagogical approaches are already embedded in early childhood instruction. The prominence of role-playing and simulations as the most utilized strategies reflects a preference for interactive and socially mediated forms of learning. This aligns with the literature which posits that play-based learning is inherently social and cognitive in nature, allowing learners to construct meaning through active engagement (Wagner, 2024; Duncan, 2024).

From a theoretical standpoint, these findings support Vygotsky's concept of social interaction in cognitive development, where activities such as role-playing facilitate learning within the Zone of Proximal Development. Similarly, studies by Pyle and Danniels (2017) emphasize that guided and collaborative play enhances children's cognitive processes by enabling interaction and scaffolding.

However, sensory play emerged as the least emphasized practice, indicating a potential gap in the diversity of play modalities. Literature suggests that sensory experiences are critical in early cognitive development as they support exploration and concept formation (Clark, 2017; Glauser-Abou Ismail et al., 2022). The limited use of such activities may therefore restrict opportunities for holistic cognitive engagement.

In terms of frequency and duration, teachers perceive play-based learning to be sufficiently implemented, although inconsistencies in scheduling suggest a lack of structured curricular integration. This finding resonates with McLean et al. (2023), who noted that inconsistencies in defining and implementing play-based learning often led to variability in classroom practices. While play is present, its systematic integration remains an area for improvement.

Regarding resources, teachers generally agree that materials are available, but concerns about quality persist. This reflects findings from Forkpah and Lutfi (2024), who emphasized that while play-based learning is widely recognized, its effectiveness is contingent upon the availability of high-quality and developmentally appropriate materials.

Teachers' perceptions of the effectiveness of play-based learning

Teachers strongly perceive play-based learning as effective in enhancing cognitive development, particularly in fostering creativity and imagination. This is consistent with existing literature, which identifies play as a critical medium for developing higher-order thinking skills, including creativity, problem-solving, and innovation (Bodrova et al., 2023; Vidal Carulla et al., 2021).

The high rating in creativity aligns with the notion that play provides an open-ended environment where learners can experiment, imagine, and construct knowledge. Studies such as Wiskstrom and Pyle (2019) confirm that free and guided play significantly contribute to creativity and executive functioning.

Similarly, the perceived effectiveness of play-based learning in enhancing critical thinking and problem-solving skills supports findings by Fisher et al. (2013), who emphasized that structured play activities promote analytical thinking and reasoning abilities. The engagement of pupils in strategic thinking during play further validates the role of play as a cognitively stimulating process.

In terms of memory and retention, teachers agree that play enhances recall and understanding. This is supported by Lamrani and Abdelwahed (2020), who found that game-based learning improves attention, memory, and cognitive engagement. Play-based activities, being meaningful and experiential, facilitate deeper encoding of information, thereby improving retention.

Overall, the findings affirm that teachers recognize play-based learning not merely as an instructional strategy but as a fundamental mechanism for cognitive development, consistent with both Piagetian and Vygotskian perspectives.

Challenges in implementing play-based learning

Interestingly, teachers generally do not perceive resource limitations, training inadequacies, or lack of support as severe barriers. However, specific concerns such as limited funding and insufficient training opportunities still emerged.

The issue of funding, although not strongly emphasized, aligns with literature highlighting resource constraints as a recurring challenge in implementing play-based pedagogy (Forkpah & Lutfi, 2024). Even when materials are available, their quality and sustainability remain concerns.

Similarly, while teachers do not strongly report lack of preparedness, the identified need for more training opportunities suggests a gap in continuous professional development. This is consistent with findings by Myck-Wayne (2010), which indicate that teachers' understanding and implementation of play-based learning vary depending on their training and exposure.

In terms of support, teachers generally disagree that there is a lack of administrative and parental involvement. This suggests a relatively supportive educational environment in San Pablo, Isabela. However, literature underscores that sustained collaboration among stakeholders is essential for maximizing the benefits of play-based learning (EEF, 2019).

Suggested strategies for improvement

Teachers strongly recommend enhancing resources, professional development, and stakeholder collaboration. The emphasis on providing materials reflects the need to address gaps in resource quality, consistent with literature advocating for adequate and diverse learning materials (Bodrova et al., 2023).

The call for hands-on professional development aligns with studies suggesting that experiential training is more effective in equipping teachers with practical skills for implementing play-based learning (Pyle & DeLuca, 2017). This indicates that teachers value applied learning approaches similar to those they implement in their classrooms.

Furthermore, the strong emphasis on parental involvement highlights the importance of home-school partnerships. Literature confirms that parental engagement enhances children's learning experiences and reinforces cognitive development beyond the classroom (Sabin, 2022).

Relationship between play-based learning and cognitive development

The study revealed a statistically significant moderate positive correlation ($r = 0.581$, $p < 0.05$) between play-based learning implementation and cognitive development. This indicates that increased use of play-based strategies is associated with improved cognitive outcomes among kindergarten pupils.

This finding strongly corroborates existing empirical evidence. Studies by Goswami and Bryant (2015) and Cook et al. (2011) demonstrate that play-based environments significantly enhance cognitive processes such as reasoning, memory, and problem-solving. Moreover, the result supports Piaget's assertion that active engagement and experiential learning are essential for cognitive development.

From a sociocultural perspective, the result also validates Vygotsky's theory that learning occurs through interaction and guided participation. Play-based learning, therefore, serves as a critical medium for cognitive growth by integrating both individual exploration and social collaboration.

Generally, the findings confirm that play-based learning is actively practiced, positively perceived, and significantly related to cognitive development among kindergarten pupils in San Pablo, Isabela. While implementation is generally strong, areas such as sensory play, resource quality, and structured integration require further enhancement.

The integration of empirical findings with existing literature underscores that play-based learning is not merely supplementary but central to early childhood education. Strengthening its implementation through improved resources, targeted training, and collaborative support systems will further optimize its impact on learners' cognitive development.

CONCLUSION

The findings of the study indicate that kindergarten teachers in San Pablo, Isabela implement diverse play-based activities in their classrooms, with role-playing being the most emphasized while sensory play is less utilized. The frequency and duration of play-based learning are generally sufficient, although the consistent integration of play into the curriculum remains a challenge. Teachers acknowledge that resources and materials for play-based learning are available, but improvements in quality and regular updating are still necessary.

The results further reveal that play-based learning is widely perceived to enhance the cognitive development of kindergarten pupils. Teachers believe that critical thinking and problem-solving skills develop through varied and well-structured play activities, while creative and imaginative thinking is strongly nurtured through exploration and interactive play. Moreover, repetitive and meaningful play tasks help strengthen pupils' memory and retention of information.

Despite these positive perceptions, teachers identified several challenges in implementing play-based learning. These include limited resources, insufficient teacher

training, and inadequate institutional support for play-based initiatives. Teachers also recognize the need for better instructional design and more structured integration of play activities within lesson planning.

To address these concerns, the study highlights the importance of encouraging a balanced implementation of all types of play activities, particularly sensory play, through the provision of materials and training. Schools are encouraged to institutionalize the consistent scheduling of play-based learning in the kindergarten curriculum and allocate sufficient funding for high-quality play materials. Professional development programs and mentorship opportunities on play-based pedagogies should also be strengthened to enhance teachers' competence and confidence.

Furthermore, stronger collaboration among school administrators, parents, local government units, and community stakeholders is essential to support the provision of resources and the creation of appropriate play environments. Developing structured lesson frameworks that integrate play-based strategies with learning objectives will also help improve instructional effectiveness.

Finally, the study confirms that there is a significant positive correlation between the level of play-based learning implementation and the cognitive development of kindergarten pupils. This finding underscores the importance of recognizing play-based learning as a central strategy in early childhood education, as it contributes significantly to the development of critical thinking, creativity, problem-solving abilities, and memory among young learners.

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