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Examining the Impacts of Play-Based Instruction Approach on Learning Outcomes in Kindergarten

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Abstract

This research examines the impact of play-based instruction on learning outcomes in Kindergarten by focusing on cognitive, gross motor, fine motor, and language development. Recognizing play as essential to early childhood learning, the study employs a descriptive experimental design, collecting quantitative data through pre-intervention and post-intervention assessments. It also gives out qualitative insights from teacher observations that uses sensory play, creative play, outdoor play, and cooperative play. Findings indicate significant improvements in problem-solving abilities, creativity, and social interactions, with learners showing increased motivation and positive attitudes towards classroom activities. In the end, the study concludes that play-based instruction enhances academic skills and fosters a supportive learning environment, and recommending its integration into early childhood education frameworks to optimize learning experiences.

Keywords: *play-based, creative play, sensory play, outdoor play, cooperative play, pre-intervention and post-intervention assessments*

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I. INTRODUCTION

In early childhood, education play-based learning has a rich history, with roots dating back to influential educational philosophers and theorists. One of the earliest proponents of play-based learning was Friedrich Froebel, who introduced the concept of kindergarten in the 19th century. He believes that play is essential for learner's development and designed teaching devices, such as building blocks and play-based activities, to support their learning. In the early 20th century, Maria Montessori further emphasized the importance of play in children's education. She believes that children learn best through hands-on experiences and self-directed play Lillard, A. (2013). She developed a method that incorporated play-based activities and materials in a carefully prepared environment to promote children's independence and exploration.

The recognition of play as an essential aspect of learner's learning and progress continued to grow throughout the 20th century. Jean Piaget emphasizes the cognitive benefits of play, highlighting how children's play allows them to establish knowledge and understand their environment. Lev Vygotsky focuses on the social aspects of play, highlighting how it promotes language development, social interaction, and the development of higher-order thinking skills. In more recent years, researchers and educational practices have further supported the importance of learning through play. Therefore, many pre-schools education programs and curricula around the world have integrated play-based instruction approaches to support learner's holistic improvement.

Play-based instruction in kindergarten education is an instructional approach that prioritizes learning through play. It involves using playful activities, such as games, pretend play, and hands-on experiences, to engage children in the learning process. Subsequently, this recognizes that young children learn best when they are actively involved, highly motivated, and thoroughly engaged. This approach is significant in promoting holistic development because it addresses the various aspects of a child's growth, including cognitive, social, emotional, and physical development (Ahmed et al., 2023). Through play, children can explore, experiment, and problem-solve, fostering their higher order critical thinking and analytical skills. It also boosts their imagination, imagination, and communication skills as they engage in pretend play and interact with their peers. Furthermore, this promotes social interaction and cooperation since children learn to take turns, share, negotiate, and resolve conflicts during play activities (McArdle et al., 2019). It also helps develop their emotional intelligence, as they learn to express and regulate their emotions in a safe and supportive environment. Overall, play-based instruction recognizes the natural inclination of children to play and harnesses its power to facilitate teaching-learning process and improvement in a holistic and enjoyable manner.

Ndlovu et al., (2023) stated “that this type of learning in early childhood education has been recognized as a valuable approach that supports children's social-emotional, physical, cognitive, language, and literacy skills”. This approach allows children to learn through meaningful and engaging experiences, promoting their overall development and fostering a love for learning. In play-based instruction approach, children can discover and examine their surroundings and understand the world around them in a hands-on and experiential way. Moreover, this is a critical part of pre-school education, as it supports children's overall healthy

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development and enhances their self-regulation abilities. Education provides a foundation for future academic success, since by integrating play into educational activities, educators can create a nurturing and inclusive environment where children feel motivated and eager to learn. Play-based learning instruction approach also allows for differentiates instruction learning experiences, as learner can inquire into topics that fascinates them within a structured yet flexible framework. By including play into lessons, teachers can create a caring and welcoming space where kids want to learn and are excited to do so. Play-based learning also lets kids learn in their own way by letting them explore topics that interest them in an organized but flexible way. Pyle and Danniels (2017) say that this kind of learning can help with schoolwork and that teachers are very crucial for making it happen. There is a range of play-based learning, from child-directed to more teacher-directed. This method helps kids feel independent and motivated, which can lead to a love of learning that lasts a lifetime.

More and more teachers in the Philippines are using play-based instruction methods in pre-school education. In the Philippines, Kindergarten classrooms commonly use controlled play activities that are meant to help kids be more creative, improve their social skills, develop their minds, and learn how to control their emotions. As a result, teachers are using play-based learning activities including dramatic play, sensory play, block construction, and art exploration to make learning fun and participatory for young children. These activities not only help kids learn important skills, but they also make them want to learn and explore.

In spite of the benefits of play-based instruction approach, educators in the Philippines may encounter several obstacles and barriers in applying a play-based instructional approach. Firstly, many Kindergarten classrooms in the Philippines may lack the necessary resources and materials to support play-based learning activities effectively. Whereas, educators may struggle to provide a wide range of play materials and equipment to facilitate diverse play experiences. Secondly, the traditional emphasis on route learning and academic achievement in the Philippine education system can pose a challenge to the adoption of play-based approaches. Educators may face resistance from parents or administrators who prioritize academic outcomes over play-based learning. Thirdly, educators may require specialized training and workshops to effectively implement play-based instructional approach in their classrooms. For without insufficient support and guidance, implementers nor the educators may find it challenging to design and facilitate meaningful play experiences for young children. Lastly, assessing and evaluating children's learning outcomes in a play-based environment can be complex. Educators may struggle to measure and document the learning progress of students engaged in play-based activities, leading to concerns about accountability and assessment practices.

While existing research on play-based instruction in Kindergarten has provided valuable insights into its benefits and effectiveness, there are still gaps and limitations that warrant further investigation to enhance understanding and implementation of this approach. One significant gap in existing research is the lack of focus on the diversity of learners and the inclusivity of play-based instruction approach. Additional exploration study is needed to explore how play-based instruction approaches can be tailored to cater the needs of diverse learners, including children with disabilities, English language learners, and those from culturally and linguistically diverse backgrounds to employ strategies like differentiated instruction, inclusive education and co-

teaching technique. Moreover, the long-term impact, since many studies on play-based learning in Kindergarten have focused on short-term outcomes, such as immediate cognitive and social benefits. There is an essential need for longitudinal investigation to explore the long-term effect of play-based instruction approach on learner's success in learning and meeting educational goals within a formal educational setting, emotional intelligence, and holistic well-being as they progress through their educational journey. Teacher Preparation and Professional Development is also one of the necessities, as it highlights the effectiveness of teacher training-workshop and reinforce in applying play-based approaches successfully. Furthermore, research is needed to identify best practices for teacher preparation and professional development in play-based instruction, including strategies for integrating play-based learning into teacher education programs. Most importantly, there is a need for research on developmentally appropriate assessment practices in play-based instruction. Where, studies should investigate how educators can effectively assess and document children's learning outcomes in a play-based environment without compromising the essence of play and exploration.

The objectives of the proposed study on play-based instruction approach in Kindergarten classrooms in the Philippines are as follows: to examine the execution of Play-Based Learning Approach. The primary objective is to assess the current practices of play-based instruction approach in Kindergarten classrooms. The study aims to evaluate the extent to which play-based instruction approaches are integrated into pre-school education and identify key strategies used by educators to promote play-based learning. The second aim is to identify barriers and challenges. The research seeks to identify the challenges and barriers that educators encounter in administering play-based instruction approach in the Philippine context. By examining factors such as limited resources, traditional teaching practices, and lack of support, the study aims to understand the obstacles to effective play-based learning. The research also aims to develop strategies and recommendations for enhancing the administering of play-based instruction approach in Kindergarten classrooms. By addressing the identified barriers and challenges, the study aims to provide practical solutions to support educators in effectively integrating play-based approaches. Lastly, this aims to promote inclusivity and equity in play-based instruction by exploring how teachers can demonstrate inclusive learning environments that meet the diverse needs of all learners in using differentiated learning styles. The study seeks to address issues of access, representation, and diversity within play-based approaches.

Moreover, just as classrooms comprise diverse learners, teachers must cater to individual differences by designing activities that embody developmentally appropriate practices tailored to learners' unique interests and needs. With the help of this study, through a play-based instruction approach, the impact on the learners will be lasting and provide an enjoyable, fantastic way of learning.

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II. MATERIALS and METHODS

Sections of Materials and Methods are inclusive of research design, participants of the study, instruments, procedure, and data analysis.

Research Design

This research utilized descriptive experimental design to employ, examine and interpret the results of the study. The researcher gathered information through a checklist using the Early Childhood Care and Development for Kindergarten learners, which includes the pre-test and post-test to measure the effectiveness of the intervention used, and assessed the impact of the intervention and evaluated any changes that occurred over time.

Participants

Participants of the study were the 24 Kindergarten learners of San Isidro Central School in San Isidro, Abra for the School Year 2024-2025.

Instruments

In this research, the researcher utilized different play such as memory game thru manipulatives, using playdough, jigsaw puzzle, and gamifications for sensory play, paper collage, sorting game thru manipulatives, drawing and coloring and unstructured play using lego and wooden blocks for creative play, sports and games such as pyramid building using can, bowling using bottle and ball, shot put using beans, and discuss throw using paper plate for outdoor play, and for cooperative play ball relay, pretend play, scavenger hunt (Bring Me) and role playing to evaluate the academic performance level of the respondents for Quarter II competencies.

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Procedure

The researcher prepared a letter to conduct a study from the head of San Isidro Central School within the institution. It was approved and signed by the School Head. Additionally, verbal consent was disseminated to parents or guardians of the participating learners during the Parent-Teacher meeting, ensuring that they are well informed and understand the nature of the study and their child's involvement. Finally, learners themselves was informed about the research and their assent was obtained to participate.

Following the consent process, a pretest was administered to the learners to evaluate their prior knowledge.

The study was conducted in the second quarter of the year 2024-2025. The researcher conducted a series of demo teaching using play-based instruction that contains different approaches such as sensory play, creative play, outdoor play, and cooperative play to test and validate the effectiveness of the said study.

After the second quarter, a post-test was administered to the learners. The post-test assessed their performance after the intervention. The data was gathered, analyzed and interpreted.

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Data Analysis

The following statistical tools were employed to analyze data:

1. The **mean** is used to describe the performance level of the Kindergarten class before and after the instructional process;

2. The **Paired-t-test** was utilized to determine the significant difference between the performance of the kinder class in their pre-test and post-test;

3. The **Bivariate Correlation Analysis** is used to determine a significant relationship between the child's development across key domains outlined in the Early Childhood Care and Development (ECCD) and their level of performance in play-based approaches.

III. RESULT and DISCUSSION

Table 1. Level of Performance of Kindergarten class exposed to various types of play, including sensory, creative, outdoor, and cooperative play

Play-based Instruction Approaches		Mean	Descriptive Interpretation
Sensory Play	Using playdough	3.00	Consistent
	Gamification	3.00	Consistent
	Jigsaw puzzle	2.63	Consistent
	memory game	2.33	Developing
	Composite Mean	2.74	Consistent
Creative Play	Paper collage	2.58	Consistent
	Sorting game	2.75	Consistent
	Drawing and coloring	2.88	Consistent
	Unstructured play (using LEGO and wooden blocks)	3.00	Consistent
	Composite Mean	2.80	Consistent
Outdoor Play	Pyramid building	2.71	Consistent
	Bowling	2.38	Developing
	Shot put	2.29	Developing
	Discuss throw	2.92	Consistent
	Composite Mean	2.57	Consistent
Cooperative Play	Ball relay	2.92	Consistent
	Pretend Play	2.33	Developing
	Scavenger Hunt (Bring me)	2.75	Consistent
	Role playing	2.67	Consistent
	Composite Mean	2.67	Consistent
	Overall	2.70	Consistent

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Table 2a. The status of Kindergarten Class in terms of their development across key domains outlined in the Early Childhood Care and Development (ECCD) Checklist after implementation of play-based instructional approaches along Gross Motor Domain

ECCD Checklist	Mean	Description
1. Nakakaakyat sa upuan o iba pang maaakyatang bagay/kasangkapan gaya ng kama nang walang tulong	3.00	AOD
2. Nakakalakad nang paatras	3.00	AOD
3. Nakakatakbo nang hindi nadadapa	3.00	AOD
4. Nakakababa sa hagdan nang dalawang paa sa bawat hakbang na nakahawak ang isang kamay sa gabay ng hagdanan	3.00	AOD
5. Nakaaakyat sa hagdan nang dalawang paa sa bawat hakbang na nakahawak sa gabay ng hagdanan	3.00	AOD
6. Nakaaakyat sa hagdan nang salitan ang mga paa at hindi humahawak sa gabay ng hagdanan	3.00	AOD
7. Nakabababa sa hagdan nang salitan ang mga paa at hindi humahawak sa gabay ng hagdanan	3.00	AOD
8. Naigagalaw ang bahagi ng katawan na tinutukoy	3.00	AOD
9. Nakakatalon	3.00	AOD
10. Naihahagis ang bola nang paitaas na may direksyon	3.00	AOD
11. Nakalulundag nang isa hanggang tatlong beses gamit ang mas gustong paa	3.00	AOD
12. Nakatatalon at nakaiikot	2.96	AOD
13. Nakasasayaw nang may pinaparisan o tinutularan/nakalalahok sa mga gawaing ukol sa kilos o galaw na para sa grupo.	2.92	AOD
Overall	2.99	AOD

Scale	Description
2.50 - 5.00	Average Overall Development (AOD)
1.50 - 2.49	Slight delay in Overall Development (SOD)
1.00 - 1.49	Significant Delay in Overall Development (SDOD)

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Table 2b. The status of Kindergarten Class in terms of their development across key domains outlined in the Early Childhood Care and Development (ECCD) Checklist after implementation of play-based instructional approaches along Fine Motor Domain

ECCD Checklist	Mean	Description
1. Nagagamit ang lahat ng limang daliri sa kamay upang makuha ang pagkain/laruan na nakalagay sa patag na espasyo.	3.00	AOD
2. Nakukuha ang mga bagay gamit ang hinlalaki at hintuturo	2.96	AOD
3. Naipakikita ang gustong kamay na laging ginagamit	3.00	AOD
4. Nalalagay/natatanggal ang mga maliliit na bagay mula sa lalagyan	3.00	AOD
5. Nahahawakan ang krayola nang nakatikom ang mga daliri sa palad	3.00	AOD
6. Natatanggal ang takip ng bote/lalagyan o inaalis ang mga balot ng mga pagkain	2.63	AOD
7. Nakaguguhit nang kusa	2.88	AOD
		AOD
8. Nakaguguhitn ang patayo at pahalang na linya	3.00	AOD
9. Nakaguguhit ng hugis bilog	3.00	AOD
10. Nakaguguhit ang larawan ng tao (ulo, mata, katawan, braso, kamay o paa)	2.50	AOD
11. Nakaguguhit ang bahay gamit ang iba't- ibang uri ng hugis (parisukat, tatsulok)	2.88	AOD
Overall	2.89	AOD

Scale	Description
2.50 - 5.00	Average Overall Development (AOD)
1.50 - 2.49	Slight delay in Overall Development (SOD)
1.00 - 1.49	Significant Delay in Overall Development (SDOD)

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Table 2c. The status of Kindergarten Class in terms of their development across key domains outlined in the Early Childhood Care and Development (ECCD) Checklist after implementation of play-based instructional approaches along Receptive Domain

ECCD Checklist	Mean	Description
1. Naituturo ang miyembro ng pamilya kapag ipinagawa	3.00	AOD
2. Naituturo ang limang bahagi ng katawan kapag ipinagawa.	3.00	AOD
3. Naituturo ang limang napangalanang larawan ng mga bagay kapag ipinagawa	3.00	AOD
4. Nakasusunod sa isang hakbang na panuto na mayroong simpleng pang-ukol (halimbawa: sa, sa mga, para sa/kay)	2.79	AOD
5. Nakasusunod sa dalawang hakbang na panuto na mayroong simpleng pang-ukol (halimbawa: kunin ang bola sa ilalim ng upuan at ibigay kay nanay)	3.00	AOD
6. Nakagagamit ng 5-20 na nakikilalang salita (halimbawa: mama, papa, etc)	3.00	AOD
7. Nakagagamit ng panghalip (hal. ako, ikaw, siya)	2.92	AOD
8. Nakagagamit ng 2-3 kombinasyon ng pandiwa-pangngalan (hal. Hingi ng gatas)	2.88	AOD
9. Napapangalanan ang mga bagay sa isang larawan (hal. larawan ng bola, nasasabi ng bata na ito ay bola)	3.00	AOD
10. Nakapagsasalita nang tama - 2-3 salita sa tamang pangungusap	2.88	AOD
11. Nakapagtatanong ng mga "ano" na tanong	2.46	SOD
12. Nakapagtatanong ng "sino" at "bakit" na tanong	2.46	SOD
13. Naikukuwento ang karanasan (kapag tinatanong/dinidiktahan) nang naayon sa pagkasunod sunod na pangyayari gamit ang mga salitang tumutukoy sa pangnakaraan (past-tense)	2.42	SOD
Overall	2.83	AOD

Scale	Description
2.50 - 5.00	Average Overall Development (AOD)
1.50 - 2.49	Slight delay in Overall Development (SOD)
1.00 - 1.49	Significant Delay in Overall Development (SDOD)

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Table 2d. The status of Kindergarten Class in terms of their development across key domains outlined in the Early Childhood Care and Development (ECCD) Checklist after implementation of play-based instructional approaches along Cognitive Domain

ECCD Checklist	Mean	Description
1.Nakikita ang direksyon ng nahuhulog na bagay	3.00	AOD
2. Nahahanap ang mga bagay na bahagyang nakatago	2.75	AOD
3. Nagagaya ang mga kilos na kakikita pa lamang	3.00	AOD
4. Naibibigay ang bagay ngunit hindi ito binibitawan	3.00	AOD
5. Nahahanap ang mga bagay na lubusang nakatago	2.75	AOD
6. Nakapaglalaro ng kunwari-warian (gaya ng pagpapakain at pagpapatulog sa manika)	3.00	AOD
7. Napagtutugma ang mga bagay	3.00	AOD
8. Napagtutugma ang 2-3 mga kulay	3.00	AOD
9. Napagtutugma ang mga larawan	3.00	AOD
10. Naihihiwalay ang mga bagay batay sa hugis	3.00	AOD
11. Naihihiwalay ang mga bagay batay dalawang katangian (hal. sa laki at sa hugis)	3.00	AOD
12. Naisasaayos ang mga bagay batay sa laki mula sa pinakamaliit hanggang sa pinakamalaki	3.00	AOD
13. Napapangalanan ang 4-6 na kulay	3.00	AOD
14. Nagagaya ang mga hugis	2.88	AOD
15.Napapangalanan ang mga hayop at gulay kapag tinanong	3.00	AOD
16.Nasasabi ang gamit ng karaniwang kasangkapan sa bahay	3.00	AOD
17.Nabubuo ang simple puzzle	2.63	AOD
18.Naiintindahan ang mga makakasalungat na salita sa pamamagitan ng pagkumpleto ng pangungusap (hal. Ang aso ay malaki, ang daga ay __)	2.75	AOD
19.Naitituro ang kaliwa at kanang bahagi ng katawan	2.92	AOD
20.Nasasabi kung ano ang mali sa larawan (hal. larawan ng pusang may pakpak. Itatanong sa bata kung ano ang mali sa larawan.)	2.75	AOD
21.Napagtutugma ang malalaki at maliliit na mga letra	2.71	AOD
Overall	2.91	AOD

Scale	Description
2.50 - 5.00	Average Overall Development (AOD)
1.50 - 2.49	Slight delay in Overall Development (SOD)
1.00 - 1.49	Significant Delay in Overall Development (SDOD)

Table 3. Comparison of significant differences between and among the level of performance of kinder class after exposure to various play-based approaches

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Play-Based Approaches	Mean
Sensory Play	2.74[a]
Creative Play	2.80[a]
Outdoor Play	2.57[a]
Cooperative Play	2.67[a]

F-value = 1.724, P-value = 0.168

Table 4. Correlation Matrix Showing the significant relationship between the child's development across key domains outlined in the Early Childhood Care and Development (ECCD) and their level of performance in play-based approaches

ECCD Key Domains	Sensory Play	Creative Play	Outdoor Play	Cooperative Play	Overall
a. Gross Motor Domain	0.224	0.169	0.152	0.281	0.269
b. Fine Motor Domain	.730**	.615**	0.234	.535**	.598**
c. Receptive Domain	0.193	.633**	0.376	.715**	.630**
d. Cognitive Domain	0.354	.645**	.436*	.609**	.643**
Overall	.495*	.737**	.420*	.749**	.744**

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

IV. DISCUSSION

This section discusses the study's results, interpreting data collected to address the research problems and providing evidence.

Table 1. The performance level of the Kindergarten class following exposure to various play-based instructional approaches demonstrates a consistent pattern of learner engagement and developmental skill acquisition across the four core domains: sensory play, creative play, outdoor play, and cooperative play. Overall mean score of 2.70, interpreted as "Consistent," indicates that learners regularly demonstrated the expected behaviors and competencies in each activity. Among the four domains, creative play achieved the highest composite mean of 2.80, suggesting that learners were most responsive to activities such as drawing and coloring, sorting, and unstructured construction play with materials like Lego and wooden blocks. These activities are well-documented in the literature as vital in enhancing fine motor coordination, creativity, and executive functioning. Research by Weisberg et al. (2016) supports this, noting that creative play fosters motor skills and higher-order thinking, problem-solving, and social-emotional development in early learners.

Sensory play followed closely with a composite mean of 2.74, reflecting consistent learner performance. Activities including playdough molding, gamified sensory games, and

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puzzle-solving provided rich tactile and kinesthetic experiences that promoted active exploration and critical thinking. However, the memory game under this domain received a mean of 2.33, falling under the “Developing” category. This suggests that while most learners benefit from multisensory play, targeted cognitive skills such as memory retention and focused attention still require support. These findings are consistent with the study of Yu and Smith (2017), which emphasized the role of object manipulation and repetition in improving early memory and attention span during play-based learning.

The class got a composite mean of 2.67 for cooperative play, which shows that they were all good at interacting with others and working together. Ball relays and scavenger hunts, for example, got higher scores and indicated that students could work together and follow group directions. However, pretend play got a lower average score of 2.33, which means that some learners are still learning how to role-play, think creatively, and act out social roles. Whitebread et al. (2017) say that pretend play is very important for learning language, empathy, and how to control your emotions. However, it doesn't work as well until adults model it and help kids interact with it, especially if they are younger and feel shy to interact among and between learners.

The results all point to the importance of play-based teaching methods for helping children grow in all areas, including motor, cognitive, language, and social-emotional skills. Most activities had the same results, but the "Developing" performance in some activities shows that some areas, like working memory, imaginative expression, and targeted physical coordination, would benefit from more focused, structured help. According to the National Association for the Education of Young Children (NAEYC) stresses the importance of providing a wide range of play experiences that are planned and include everyone, and that are tailored to each child's developmental needs (NAEYC, 2020). These findings support that idea. This shows that play activities need to be planned and tailored to each child's needs. Zosh et al. (2018) say that high-quality play environments should include a good mix of freedom and structure to completely support the cognitive, physical, and social-emotional growth of young children. These findings are in line with that.

Table 2a shows that Kindergarten learners reached a high level of development in the Gross Motor Domain, as evidenced by an overall mean score of 2.99, interpreted as "Average Overall Development (AOD)" according to the ECCD Checklist. This result signifies that the learners consistently demonstrated age-appropriate gross motor skills following their exposure to play-based instructional approaches. Each of the 13 gross motor indicators yielded mean scores ranging from 2.92 to 3.00, with twelve indicators achieving the perfect score of 3.00. These results suggest a strong level of proficiency in physical competencies such as climbing, balancing, walking backward, running, stair climbing (with and without handrails), jumping, and ball-throwing. These are fundamental skills critical for developing body awareness, coordination, strength, and motor planning.

The slightly lower mean scores were observed in *"Nakatatalon at nakaiikot"* (mean = 2.96) and *"Nakasasayaw nang may pinaparisan o tinutularan"* (mean = 2.92), which although still within the Average Overall Development range, reflect a relative challenge in tasks

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requiring rhythm, bilateral coordination, and movement imitation. These skills involve not just motor execution but also the ability to synchronize movements with music or peer modeling. As such, the results point to the importance of continued exposure to creative movement, structured dance routines, and group imitation games, as this supports both gross motor and cognitive-motor integration.

Recent studies on how young children grow physically significantly confirm these results. Robinson et al. (2016), for example, said that structured physical play and environments with lots of mobility are very good for young children's basic motor skills, which are the building blocks for being physically active and ready for school for the rest of their lives. Logan et al. (2017) discovered the same thing: that purposeful and guided physical activities like obstacle courses and relays help young learners not only with their locomotor and object handling skills, but also with their confidence and determination.

The consistently high results on almost all indicators show that play-based learning works because it gives kids real, age-appropriate experiences that get them moving and encourage them to have fun and participate. These students may have done well because they did activities that improved their motor skills, like playing ball games, doing rhythmic movement sessions, dancing, and exploring outside. These activities are important for making relevant contexts for learning gross motor skills. Stodden et al. (2021) point out that adding exciting and engaging physical play to the daily classroom routine is a big help for motor skills and other developmental goals, like social involvement and emotional control.

In conclusion, the gross motor performance results strongly support the idea that planned, diversified, and play-based physical education is a very good way to help Kindergarten students improve their motor skills. Targeted reinforcement in rhythmic movement and patterned imitation can further close minor gaps, ensuring a comprehensive foundation for more complex motor skills and active lifestyles.

Table 2b The post-intervention assessment of Kindergarten learners using the ECCD Checklist revealed an overall mean of 2.89 in the Fine Motor Domain, which is interpreted as "Average Overall Development (AOD)." This outcome indicates that the learners are developmentally progressing on track in performing tasks requiring hand coordination, manual dexterity, and visual-motor integration—skills that are foundational for writing, self-care, and later academic success. Notably, several key fine motor indicators received a perfect mean score of 3.00, including the use of all five fingers to pick up food or toys, grasping small objects, identifying hand dominance, and drawing basic lines and circles. These skills reflect a solid foundation in bilateral coordination and muscle control, aligning with expected milestones in early childhood.

Despite these strengths, a few indicators scored slightly lower, though still within the "Average Development" category. For example, removing bottle caps or food wrappers scored 2.63, suggesting that while most children are progressing, some may still be developing the fine finger strength and wrist coordination necessary for complex manipulation tasks. Similarly, free drawing (2.88) and drawing houses with different shapes (2.88) indicate growing abilities in

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visual-spatial organization and imaginative representation, yet still leave room for improvement. The lowest mean score was recorded in drawing a human figure with body parts (2.50)—the minimum for AOD—highlighting the early stages of symbolic representation, sequencing, and anatomical understanding.

These findings are supported by the work of Cameron et al. (2016), who emphasize that early fine motor skill development is highly predictive of academic performance, particularly in literacy and mathematics, due to its role in attention regulation, hand-eye coordination, and task persistence.

Cameron et al. (2016) complements these results by saying that developing fine motor skills early on is a strong predictor of academic success, especially in reading and math, because it helps with attention control, hand-eye coordination, and sticking with tasks. Pitchford and Outhwaite (2016) also found that kids who regularly do fine motor-rich activities like drawing, cutting, and playing with small objects show measurable improvements in both cognitive and language outcomes. This shows how important it is to include these activities in early learning.

Hands-on, manipulating activities like paper collage, coloring, sorting games, and unstructured block play are what make the play-based educational method work in this area. These activities not only improve fine motor skills, but they also encourage creative expression and executive functioning, which are both important for being ready for kindergarten. Bart et al. (2017) points out that children who play with fine motor skills for a long time are much better able to focus, plan, and coordinate their actions, especially when teachers provide them the right support.

To ensure continued growth, more structured opportunities to develop precision, representation, and multi-step drawing (e.g., people, objects, scenes) are recommended. Guided drawing sessions, play-based art integration, and fine motor "task boxes" could be employed to progressively develop skills in drawing, sequencing, and symbolic understanding. These strategies will support learners in advancing from basic to more complex levels of fine motor performance.

Table 2c The results of the post-intervention assessment using the ECCD Checklist indicated that Kindergarten learners achieved an overall mean of 2.83 in the Receptive Language Domain, falling under the classification of "Average Overall Development (AOD)." This suggests that the learners had developed age-appropriate language comprehension abilities, a key indicator of early literacy readiness, following their engagement in varied play-based instructional strategies. When you look more closely at the data, you can see that eight out of thirteen indicators got a perfect mean score of 3.00, which means that the learnerss were fully able to do basic receptive language activities. These include being able to name family members and body parts, follow simple and multi-step directions, and use basic vocabulary and pronouns. These are all important skills for comprehending and processing spoken language in social and educational settings.

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Tasks that required more advanced language skills, like employing pronouns (mean = 2.92), combining verbs and nouns (mean = 2.88), and making sentences that were grammatically accurate (mean = 2.88), showed moderate but still adequate performance. These scores are still in the "Average Overall Development" range, but they show that learners are getting better at making sentences, understanding syntax, and using functional vocabulary. These are all things that are usually improved by practicing conversation, hearing modeled language, and telling stories interactively. Studies like those by Wasik and Hindman (2020) back up these observations. They showed that language-rich interactions and dialogic reading practices help young children learn new words, improve their grammar, and tell stories better.

But there were some serious developmental issues that came up in the last phase of the assessment. Learners were assessed to be "Slightly Delayed in Overall Development (SOD)" in asking “what,” “who,” and “why” questions (mean = 2.46), and in retelling experiences in sequence using past tense (mean = 2.42). These skills involve not just language processing, but also cognitive-linguistic integration, such as sequencing, cause-effect reasoning, and understanding time concepts, which are typically more demanding for young learners. According to Massey (2019), the development of such skills requires scaffolded verbal interactions, where children are guided through conversations that prompt them to reflect, recall, and explain—especially through open-ended questioning and reflective storytelling.

These findings align with Whitebread et al. (2017), who assert that imaginative and cooperative play, particularly pretend play, contributes significantly to children's narrative competence and language creativity. When learners are not frequently engaged in these structured language environments, delays in higher-order language functions may occur despite strong receptive abilities.

Overall, the data affirm the positive impact of play-based instruction on receptive language development, particularly in vocabulary acquisition, following commands, and simple sentence use. However, the slight delay in expressive and narrative elements suggests a need for more intentional integration of structured storytelling, role-playing, and dialogic interaction within the play-based curriculum. These strategies can foster comprehension and expressive fluency, inferential reasoning, and interactive communication—skills vital for academic and social success.

Table 2d The post-intervention assessment of Kindergarten learners in the Cognitive Domain revealed promising results, with an overall mean of 2.91, categorized as "Average Overall Development (AOD)" according to the ECCD Checklist. This indicates that learners demonstrated age-appropriate cognitive abilities, including observation, matching, classification, sequencing, and beginning problem-solving. A majority of the indicators under this domain achieved the maximum score of 3.00, showcasing learners’ high proficiency in foundational cognitive skills such as tracking object direction, imitating actions, engaging in pretend play, matching colors and shapes, arranging items by size, and identifying common items and their functions.

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These results are in line with what Zosh et al. (2018) found. They said that play-based learning environments help with cognitive flexibility, executive function, and early symbolic thinking by getting kids involved and letting them explore things with their hands. The learners did very well on activities that required visual discrimination, logical grouping, and conceptual labeling. This shows that they had many chances to touch, explore, and understand their surroundings, which are all important parts of good early cognitive development.

Even though the overall performance was very good, several cognitive markers had somewhat lower averages, but they were still in the "Average Overall Development" category. These tasks included figuring out easy puzzles (mean = 2.63), matching big and tiny letters (mean = 2.71), understanding opposites (mean = 2.75), and spotting things that don't look right in pictures (mean = 2.75). These exercises need a mix of advanced reasoning, paying attention to details, and basic reading and writing skills. Berk and Meyers (2017) say that these kinds of tasks help kids acquire metacognition and symbolic representation early on. These skills usually develop more slowly and need constant cognitive stimulation through age-appropriate challenges.

Fisher et al. (2019) also stress that while play naturally helps kids develop basic cognitive skills, they need to be taught more advanced skills like abstract thinking, error detection, and comparative reasoning through structured learning and problem-based learning. These sections' somewhat lower ratings show that teachers need to do more than just let students play. They need to use organized inquiry-based play scenarios, guided puzzle-solving, critical questioning, and picture analysis.

In short, the results show that play-based teaching is a good way to help young students develop their key cognitive skills by giving them fun, interactive, and relevant learning experiences. However, to elevate learners' skills in more complex cognitive domains, teachers are encouraged to incorporate progressively challenging and scaffolded tasks, including games that involve puzzles, opposites, classification, and spatial reasoning. These activities will further enhance learners' ability to think critically, reason abstractly, and process visual information—skills vital for success in literacy, numeracy, and higher academic tasks.

Table 3 indicates that there are no statistically significant differences in the performance levels of the Kindergarten class across the different play-based instructional approaches—sensory play, creative play, outdoor play, and cooperative play. The computed F-value of 1.724 and p-value of 0.168 are above the 0.05 level of significance, suggesting that the differences in the mean scores (ranging from 2.57 to 2.80) are not statistically meaningful. This implies that the learners exhibited relatively uniform developmental performance levels across the various types of play activities prior to the intervention.

This lack of significant difference may be attributed to the comparable developmental readiness of the Kindergarten learners at baseline, which suggests that they had likely been exposed to similar foundational play experiences either at home or in prior early learning settings. Because of this, kids came into the intervention with skills and abilities that were evenly spread out across all four areas: sensory, motor, cognitive, and social-emotional. Lillard et al. (2017), say that play is a universal way for young children to learn and that it gives everyone the same

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chances to participate, no matter what type of activity they are doing, especially if they have had some kind of structured or unstructured play experience.

Also, the fact that there was no substantial difference in performance may show how different areas of development are connected and how different types of play might help in similar ways. Sensory, creative, outdoor, and cooperative play all have different activities and materials, but they all help with the same basic developmental processes, like memory, attention, executive function, and emotional regulation. This backs up what Zosh et al. (2018) found: that meaningful play in different settings uses the same cognitive and emotional processes, leading to similar developmental gains no matter what form of play it is.

These results are in line with what other research has said about the overall benefits of play-based learning approach in pre-school education. Sakib (2022) emphasized that play enhances not only student engagement but also contributes to cognitive, emotional, and physical growth, particularly when integrated into developmentally appropriate instruction. Similarly, Annet (2024) found that both structured and free play promote cognitive flexibility, language development, and peer collaboration, supporting the view that all play types—when effectively facilitated—can lead to parallel developmental benefits.

In summary, the ANOVA results confirm that learners were developmentally aligned before intervention and that no single type of play-based approach held a significantly greater initial impact. This provides a strong justification for a balanced and integrated play-based curriculum, where diverse play experiences are equally valued and used to build upon children shared developmental foundation.

Table 4 offers valuable insights into the relationship between children's developmental domains, as assessed by the ECCD Checklist, and their performance across various play-based instructional approaches. The data reveal that among the four key developmental domains, the Fine Motor Domain exhibits the highest and most consistent positive correlations with the different types of play, particularly sensory play ($r = 0.730$, $p < 0.01$), creative play ($r = 0.615$, $p < 0.01$), and cooperative play ($r = 0.535$, $p < 0.01$). These substantial associations show that play that involves using tools, manipulating things, and coordinating hand and eye movements is very helpful for developing fine motor skills. This study is in line with recent research, such as Pitchford and Outhwaite (2016), which showed that doing things with your hands, such drawing, creating, and moving small items, greatly improves fine motor abilities.

The Cognitive Domain also has strong and important links to play, especially creative play ($r = 0.645$, $p < 0.01$), cooperative play ($r = 0.609$, $p < 0.01$), and overall play performance ($r = 0.643$). These studies show how play experiences that encourage imagination, problem-solving, planning, and making decisions together can help kids' brains. Zosh et al. (2018) say that these kinds of guided or semi-structured play can improve executive functioning, working memory, and reasoning, which are all important for cognitive development in young children.

On the other hand, the Gross Motor Domain and Receptive Language Domain showed weaker and less consistent links to play-based techniques. There was only a moderate link between gross motor skills and cooperative play ($r = 0.281$). This suggests that some physical

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activities help gross motor development, but play-based tasks in regular classrooms may not have as big of an effect on them. The Receptive Domain also had a very strong link to cooperative play ($r = 0.715$, $p < 0.01$), which suggests that social interaction during group play, especially when it involves talking, negotiating, and listening, is very important for improving children's receptive language. This backs up what Wasik and Hindman (2020) found, which showed that interactive and dialogic play can help kids understand what they hear and learn new words.

Creative play was the best overall predictor of developmental success ($r = 0.737$), which shows how beneficial it is for the whole person. This kind of play usually includes open-ended materials, creative expression, and chances to do projects alone or with others. Research by Ginsburg et al. (2019) confirms that creative play not only boosts fine motor abilities but also promotes innovation, flexible thinking, and early literacy and numeracy skills.

Overall, the correlation analysis suggests that creative and cooperative play are the most developmentally enriching forms of play, with strong associations to fine motor and cognitive development, and moderate to strong links with language skills. The relatively weaker relationships observed for gross motor skills imply that targeted physical education programs or outdoor motor-focused activities may be more appropriate complements to play-based instruction for developing those skills. These findings highlight the necessity of a balanced and intentional integration of diverse play types, tailored to promote specific developmental goals.

V. CONCLUSION

Based on findings of the study, the following conclusions have been drawn:

Use of various play-based instructional approaches contributes to a consistently strong overall performance among Kindergarten learners, with each type of play supporting different developmental areas. Kindergarten learners generally exhibit average developmental progress across physical, language, and cognitive domains, with noticeable strengths in basic motor and matching skills, but require targeted support in areas involving precision, expressive language, and complex problem-solving. Kindergarten learners exhibit a uniform baseline of developmental readiness across various play-based learning approaches, indicating comparable performance levels regardless of the type of play used prior to instructional interventions. Children's developmental progress in ECCD domains is positively linked to their engagement in play-based learning, with fine motor skills showing the strongest associations. Among the play types, creative and cooperative play significantly support holistic development, emphasizing their value in early childhood education.

The following are recommended based on the findings and conclusions of the study:

Curriculum implementers may ensure a balanced approach that integrates play-based methods across all key developmental domains, especially addressing the weaker areas of gross motor and receptive language skills. School administrators may provide trainings for educators on effective play-based strategies and on the assessment of various developmental domains in young learners. Curriculum planners should design play-based modules that gradually introduce differentiated activities to maximize engagement and support personalized learning paths. Early childhood educators prioritize creative and cooperative play in the classroom to strengthen

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overall child development, particularly in enhancing fine motor skills. Integrating activities such as drawing, building, group problem-solving, and collaborative games can provide rich, developmentally appropriate learning experiences.

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