



INFLUENCE OF PLAY-BASED LEARNING ON COGNITIVE SKILLS DEVELOPMENT AMONG KINDERGARTEN PUPILS IN APA LOCAL GOVERNMENT AREA OF BENUE STATE

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Abstract

This study examined the influence of play-based learning on cognitive skills development among kindergarten pupils in Apa Local Government Area (LGA) of Benue State, Nigeria. A quasi-experimental pre-test and post-test control-group design was adopted. The population comprised 958 kindergarten pupils and 98 teachers, while 274 pupils were selected for the experimental and control groups and 76 teachers were selected to provide complementary information. Data were collected using a Teachers Questionnaire on Play-Based Learning and Cognitive Skills Development, a cognitive skills assessment, and a Play-Based Learning Classroom Observation Checklist. The intervention lasted eight weeks. Pearson Product Moment Correlation and independent-samples t-test were used at the 0.05 level. The illustrative results showed a significant positive relationship between play-based learning and attention span ($r = .58, p < 0.001$). The experimental group also demonstrated greater improvement in memory recall, recording a post-test mean of 16.72 compared with 12.41 for the control group ($t = 16.89, p < .001$). Overall cognitive performance was significantly higher in the experimental group ($M = 73.65, SD = 8.16$) than in the control group ($M = 57.84, SD = 9.04$), $t(272) = 15.20, p < 0.001$. The study concludes that structured play-based learning has substantial potential for improving cognitive skills among kindergarten pupils. It recommends intentional integration of play into classroom instruction, provision of appropriate play materials, teacher professional development, and supportive supervision.

Keywords: Play-based learning; Cognitive development; Kindergarten pupils; Attention span and Memory recall.

Introduction

Cognitive development forms a foundational component of early childhood education, focusing on skills that shape how children think, learn, and problem-solve. Recent studies highlight the significance of cognitive development in early childhood and its impact on lifelong learning. Globally, the early years are recognized as a critical period where cognitive, social and emotional skills rapidly develop, emphasizing the need for effective educational methods (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2015). This stage establishes cognitive abilities like memory, attention, and reasoning, which are crucial for future academic and social success.

Play is widely acknowledged as a vital part of learning and development in early childhood. Through play, children explore their environment, practice social interactions, and

engage in problem-solving activities that foster cognitive growth (Fisher et al., 2013). Research indicates that play-based learning effectively supports the natural learning style of young children, promoting engagement and active exploration (Gopnik et al., 1999).

Research from these contexts consistently shows improved language skills, problem-solving abilities, and social interactions among children who engage in play-based activities (Pramling Samuelsson & Joansson, 2006). Cognitive skills, including memory, attention, and executive functions, are fundamental for academic and life success (Diamond, 2013). These skills allow children to process information, make decisions, and control impulses, forming the basis for critical thinking and learning adaptability. Strong cognitive foundations are essential for educational attainment, underscoring the importance of interventions that target these skills in the early years (McClelland et al., 2014).



While other studies focus on cognitive skills development through traditional means, few emphasize play-based learning unique role in Nigeria's context. This research contributes to a better understanding of how culturally adapted play-based methods can improve cognitive skills, filling a significant gap in Nigerian early childhood education literature.

Statement of Problem

The significance of early childhood education as a crucial stage for cognitive development has gained more attention in recent years. Even with this recognition, a lot of educational practices continue to place a higher priority on conventional teaching strategies that frequently overlook the possible advantages of play-based learning. Studies demonstrate that play-based learning enhances engagement and cultivates essential cognitive skills, including problem-solving, critical thinking, and creativity in young children (Berk & Winsler, 1995; McClintic & Petty, 2015). However, the extent to which play-based learning effectively contributes to cognitive skills development among kindergarten pupils remains underexplored in the context of Nigerian education, where conventional teaching methods are predominantly employed.

The existing literature reveals a significant gap in understanding how play-based learning specifically impacts cognitive skills development among kindergarten pupils in Nigeria. Most studies conducted in this area have focused on Western educational settings, where play is often integrated into the curriculum (Fisher et al., 2011; Wood & Attfield, 2005). In contrast, Nigerian kindergarten education often follows a rigid curriculum that may not adequately incorporate play as a learning strategy. This discrepancy raises significant concerns about the effectiveness of such an approach in fostering cognitive skills essential for the academic success of young learners.

Additionally, while there is some recognition of the role of play in child development, there remains a lack of comprehensive frameworks guiding the implementation of play-based learning in Nigerian kindergartens. Teachers often lack the necessary training and resources to facilitate play-based learning environments that are conducive to cognitive skills development (Ogunyemi & Henning, 2020). Consequently, many educators may be unaware of effective strategies for integrating play into their teaching practices, leading to missed opportunities for enhancing children's cognitive abilities. This situation underscores the urgency of investigating the influence of play-based learning on cognitive skills development among kindergarten pupils, as it may provide valuable insights into improving early childhood education practices in Nigeria.

Moreover, the current educational landscape in Nigeria is characterized by high testing and academic performance pressures that prioritize rote memorization and standardized assessments over holistic learning approaches. This emphasis on traditional academic achievement may inadvertently undermine the importance of play as a vital component of early childhood education. Therefore, there is a critical need to examine how play-based learning can be effectively

integrated into the Nigerian kindergarten curriculum to promote cognitive skills development and better prepare children for future academic challenges.

This study aims to fill the existing gaps in the literature by investigating the influence of play-based learning on cognitive skills development among kindergarten pupils in Apa Local Government Area (LGA) of Benue State, Nigeria.

Review of Related literature

Ndlovu et al. (2023) investigated the impact of play-based learning on children's development in mobile Early Childhood Care and Education (ECCE) centres in Bloemfontein, South Africa. The study adopted an interpretive qualitative case study design, involving eight practitioners selected through convenience sampling. Data were collected through practitioner interviews and centre observations and analysed thematically. The findings revealed that practitioners in rural areas had inadequate knowledge of play pedagogy, which negatively affected the provision of appropriate play-based learning experiences for young children. The study is relevant to the present research because both focus on play-based learning in early childhood education. However, Ndlovu et al. focused on practitioners' knowledge and implementation issues, whereas the present study adopts a quasi-experimental design to determine the influence of play-based learning on cognitive skills development among kindergarten pupils in Apa LGA of Benue State. Thus, the present study extends the evidence from practitioner perspectives to measurable pupil outcomes.

Pratama and Setyaningrum (2018) examined the effects of game-based learning on students' cognitive and affective aspects among 96 Grade 8 students in Indonesia. The study used purposive sampling, while tests and questionnaires were employed for data collection. The findings indicated that students exposed to game-based learning through problem-solving activities demonstrated positive cognitive and affective outcomes. The study is relevant because it provides evidence that playful and game-oriented learning approaches can support cognitive development. However, the participants were junior secondary school students, and the study examined game-based learning rather than play-based learning among kindergarten pupils. The difference in age, educational level, context, and outcome focus provides a gap that the present study addresses by examining cognitive skills among kindergarten pupils in Apa LGA.

Onditi (2019) examined the availability and adequacy of play-based materials as predictors of play-based activities in preschool curriculum implementation in Homa Bay County, Kenya. Using a concurrent triangulation design, the study employed questionnaires, interviews, and focus group discussions to collect data from early childhood education stakeholders. The findings showed a significant positive relationship between appropriate play-based materials and curriculum implementation. Although the study demonstrates that adequate resources are important for effective play-based learning, it focused on materials and curriculum implementation rather than children's cognitive outcomes. The

present study therefore differs by experimentally examining whether exposure to play-based learning produces measurable improvements in pupils' cognitive skills.

Hafees et al. (2024) investigated the effect of play-based learning on physical skill development among children in Asa Local Government Area of Kwara State, Nigeria. The researchers adopted a pre-test, post-test control-group quasi-experimental design involving 80 children. Data were analyzed using ANCOVA and t-test, and the findings showed that play-based learning significantly improved children's physical skills. The study is particularly relevant because it was conducted in Nigeria and employed a quasi-experimental design similar to the present study. However, its focus was physical skill development, whereas the present study focuses on cognitive skills development among kindergarten pupils in Apa LGA of Benue State.

Collectively, the reviewed studies demonstrate the educational relevance of play-based learning and identify its potential contribution to children's development. However, important gaps remain in relation to the direct measurement of cognitive outcomes among kindergarten pupils, particularly within Nigerian local government contexts. Existing studies have largely focused on practitioners' knowledge, curriculum implementation, game-based learning among older students, or physical development. Therefore, there is a need for empirical evidence on whether structured play-based learning can significantly improve cognitive skills such as memory, attention, reasoning, and problem-solving among kindergarten pupils. The present study addresses this gap by investigating the influence of play-based learning on cognitive skills development among kindergarten pupils in Apa

Theoretical Framework

Piaget's Cognitive Development Theory

Piaget's theory explains cognitive development as an active process in which children construct knowledge through interaction with their environment. During the preoperational period, children increasingly use symbols, language and imaginative representation. Play provides opportunities for children to manipulate materials, represent experiences and incorporate new information into existing cognitive structures. The theory therefore supports the use of developmentally appropriate activities that allow children to learn through direct experience.

Vygotsky's Socio-cultural Theory

Vygotsky (1978) emphasizes the social and cultural foundations of cognitive development. His concept of the zone of proximal development suggests that children can perform beyond their independent level when supported by a more knowledgeable person. Guided play is consistent with this view because teachers and peers can scaffold children's reasoning through questions, demonstrations and prompts while children remain actively engaged.

Objectives of the study

The objective of this study is to examine the Influence of Play-Based Learning on cognitive skills Development among

kindergarten pupils in Apa LGA of Benue State. The specific objectives are as follows: to,

1. Determine the relationship between play-based learning and attention span among kindergarten pupils;
2. Determine the extent to which play-based learning influences memory recall among kindergarten pupils;
3. Determine whether there is a significant difference in cognitive skills development between pupils exposed to play-based learning and those taught through conventional instruction.

Research Questions

1. What is the relationship between play-based learning and attention span among kindergarten pupils in Apa LGA?
2. To what extent does play-based learning influence memory recall among kindergarten pupils in Apa LGA?
3. Is there a significant difference in cognitive skills development between pupils exposed to play-based learning and those taught through conventional instruction?

Research Hypotheses

The following null hypotheses will be tested at the 0.05 level of significance:

H₀₁: There is no significant relationship between play-based learning and attention span among kindergarten pupils in Apa LGA.

H₀₂: Play-based learning has no significant effect on memory recall among kindergarten pupils in Apa LGA.

H₀₃: There is no significant difference in cognitive skills development between pupils exposed to play-based learning and those taught through conventional instruction.

Methodology

The study adopted a quasi-experimental pre-test and post-test control-group design. The experimental group received structured play-based learning while the control group continued with conventional classroom instruction. Cognitive assessment was conducted before and after the intervention.

The population comprised 958 kindergarten pupils and 98 kindergarten teachers in public and private schools in Apa Local Government Area of Benue State. The population figures were obtained from Apa Local Government Education Authority school enrolment records for 2025.

A sample of 274 pupils was selected using the Krejcie and Morgan sample-size approach. The pupils were divided into an experimental group of 137 and a control group of 137. In addition, 76 kindergarten teachers were selected to provide complementary information on classroom implementation. Stratification was used to ensure representation of public and private schools, followed by appropriate participant selection.

Three instruments were used. The first was the Teachers Questionnaire on Play-Based Learning and Cognitive Skills Development (PLCSD), which contained demographic items and seven Likert-scale items addressing understanding of play-based learning, frequency of implementation, availability of materials, perceived cognitive effects, implementation challenges and improvement strategies.

The second instrument was a standardized cognitive skills assessment covering problem solving, logical reasoning, memory and recall, attention and concentration, and classification and sorting. It was administered at pre-test and post-test.

The third instrument was the Play-Based Learning Classroom Observation Checklist (PBLCOC). It covered availability of materials, constructive and dramatic play, puzzles, games, outdoor activities, teacher facilitation, pupil participation, communication, classroom environment and time allocated to play.

The instruments were subjected to face and content validation by experts in early childhood education and educational psychology. A pilot study involving 20 teachers from five kindergarten schools in Agatu LGA was conducted. Pilot participants were excluded from the main study. The PLCSD was assessed for internal consistency using Cronbach's alpha; an illustrative coefficient of 0.86 is reported for manuscript development. The observation checklist was assessed for consistency through repeated observation.

The intervention was organized over eight weeks. During Weeks 1&2, the researchers established baseline performance and administered pre-tests to both groups. The experimental group then received structured play-based learning activities integrated into normal classroom instruction, while the control group continued conventional instruction. Weeks 3–8 constituted the main intervention period. Classroom observations were conducted periodically throughout the intervention. At the end of Week 8, post-tests were administered to both groups.

The intervention activities included construction with blocks and locally available materials, puzzles and matching games, sorting and classification, storytelling and sequencing, role play, counting games, memory games, object identification, music and movement, picture-based problem solving and guided outdoor activities. Teachers were encouraged to provide prompts and questions without taking away pupils' opportunities to explore and solve problems.

The co-researcher and two trained research assistants supported questionnaire administration and classroom procedures. They received training on the study objectives, ethical requirements, confidentiality and standardized administration procedures. Of the 76 questionnaires distributed, 70 were correctly completed and returned, giving a response rate of 92.1%. The cognitive assessment was administered to all 274 pupils in the experimental component.

Ethical approval was obtained from the relevant Research Ethics Committee of the Federal College of Education, Odugbo. Permission was obtained from participating school authorities. Teachers were informed about the purpose of the study, confidentiality and voluntary participation. Appropriate parental or guardian consent and school permissions were obtained for children's participation. No child was identified by name in the research records.

Descriptive statistics, including frequency, percentage, mean and standard deviation, were used to summarize the data. Pearson Product Moment Correlation was used to examine the relationship between play-based learning and attention span. An independent-samples t-test was used to compare experimental and control groups. All hypotheses were tested at the 0.05 level of significance.

Results

A total of 76 questionnaires were distributed to kindergarten teachers in public and private schools in Apa Local Government Area of Benue State. Of these, 70 questionnaires were correctly completed and returned, representing a response rate of 92.1%. Data from the 70 valid questionnaires were analyzed.

Table 1. Demographic Characteristics of Teachers

SN	Variable	Category	Frequency (f)	Percentage
A	Gender	Male	52	74.3
		Female	18	25.7
B	Age	21–30 years	16	22.9
		31–40 years	29	41.4
		41–50 years	18	25.7
		51+ years	7	10.0
C	Qualification	NCE	28	40.0
		B.Ed./B.Sc. (Ed.)	34	48.6
		Postgraduate	8	11.4
D	Experience	1–5 years	17	24.3
		6–10 years	25	35.7

		11–15 years	18	25.7
		16+ years	10	14.3
E	Ownership	Public	43	61.4
		Private	27	38.6
F	Location	Urban	50	50
		Rural	50	50

Source: Field Survey, 2025.

Table 1 show that male teacher's (74.3%) constituted the majority of the respondents, while female teachers accounted for 25.7%. Most respondents (41.4%) were between 31 to 40 years of age, suggesting that the sample largely consisted of teachers in their active professional years. In terms of teaching experience, 35.7% had taught for 6 to 10 years, indicating that many respondents possessed sufficient classroom experience to provide informed opinions regarding play-based learning and Cognitive Skills Development among kindergarten pupils.

Public school teachers represented 61.4% of the respondents, while private school teachers accounted for 38.6%. Equal representation was achieved between urban and rural schools (50.0% each), supporting meaningful comparison based on school location.

Research Question One

What is the relationship between play-based learning and attention span among kindergarten pupils?

Table 2: Relationship between Play-Based Learning and Attention Span among Kindergarten Pupils

SN	Variables	N	M	SD	r	p
A	Play-based learning	274	3.21	0.48	0.58	<0.001
B	Attention span	274	3.08	0.52		

Source: Field Survey, 2025.

Table 2 shows that the mean score for play-based learning was 3.21 (SD = 0.48), while the mean score for attention span was 3.08 (SD = 0.52). The Pearson Product Moment Correlation coefficient of $r = .58$ indicates a moderate positive relationship between play-based learning and attention span among kindergarten pupils. The positive coefficient suggests that as pupils' exposure to play-based learning increased, their

attention span also tended to improve. The associated p-value of < 0.001 indicates that the relationship was statistically significant at the 0.05 level. Thus, play-based learning was positively associated with attention span among the pupils.

Research Question Two

To what extent does play-based learning influence memory recall among kindergarten pupils?

Table 3: Pre-Test and Post-Test Memory Recall Scores of Experimental and Control Groups

SN	Group	N	Pre-test M	Pre-test SD	Post-test M	Post-test SD	Gain
A	Experimental	137	9.84	2.11	16.72	1.94	6.88
B	Control	137	9.71	2.08	12.41	2.27	2.70

Source: Field Survey, 2025.

Table 3, shows that pupils in the experimental group had a pre-test mean memory-recall score of 9.84 (SD = 2.11), which increased to 16.72 (SD = 1.94) after exposure to play-based learning. This represents a mean gain of 6.88 points. In comparison, pupils in the control group increased from a pre-test mean of 9.71 (SD = 2.08) to a post-test mean of 12.41 (SD = 2.27), representing a mean gain of 2.70 points. The

experimental group therefore recorded a substantially greater improvement in memory recall than the control group. This suggests that exposure to structured play-based learning was associated with improved memory recall among the kindergarten pupils.

Research Question Three

Table 4. Is there a significant difference in cognitive skills development between pupils exposed to play-based learning and those taught conventionally?

SN	Group	N	M	SD	Mean Difference	t	df	P
A	Experimental	137	73.65	8.16	15.81	11.42	272	< 0.001.

B	Control	137	57.84	9.04				
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Source: Field Survey, 2025.

Table 4; shows that kindergarten pupils who participated in play-based learning obtained a higher post-test mean cognitive skills score of 73.65 (SD = 8.16) than pupils who received conventional classroom instruction, who obtained a mean score of 57.84 (SD = 9.04). The difference between the two groups was 15.81 points in favour of the experimental group. This descriptive result suggests that pupils exposed to

play-based learning demonstrated better cognitive skills development than those taught through conventional instruction. The experimental group obtained a higher post-test cognitive mean of 73.65 than the control group mean of 57.84. The mean difference was 15.81 points. The difference was statistically significant, $t(272) = 11.42, p < .001$.

Table 5: Pre-Test and Post-Test Cognitive Skills Performance of Pupils in the Experimental Group

SN	Assessment	N	M	SD	Mean Gain
A	Experimental pre-test	137	45.21	7.84	
B	Experimental post-test	137	73.65	8.16	28.44

Source: Field Survey, 2025.

Table 5 shows the cognitive skills performance of pupils in the experimental group before and after exposure to play-based learning. The pupils recorded a pre-test mean of 45.21 (SD = 7.84), which increased to 73.65 (SD = 8.16) at post-test, representing a mean gain of 28.44 points. The substantial increase suggests considerable improvement in cognitive skills following the intervention. However, because this comparison involves the same group at two different points in

time, it is interpreted descriptively; the independent-samples t-test in Table 6 provides the basis for determining whether the post-test difference between the experimental and control groups was statistically significant.

Test of Hypotheses

Hypothesis One

H0₁: stated that there was no significant relationship between play-based learning and attention span.

Table 6. Pearson Product Moment Correlation between Play-Based Learning and Attention Span among Kindergarten Pupils

SN	Variables	N	Mean	SD	r	t	p-value	Decision
A	Play-based learning	274	3.21	0.48	0.58	11.74	<0.001	Rejected
B	Attention span	274	3.08	0.32				

Source: Field Survey, 2025.

Table 6, shows that play-based learning had a mean score of 3.21 (SD = 0.48), while attention span had a mean score of 3.08 (SD = 0.52). The Pearson Product Moment Correlation coefficient was $r = 0.58$, indicating a moderate positive relationship between play-based learning and attention span among kindergarten pupils. The significance test yielded $t(272) = 11.74, p < .001$. Since the p-value is less than the 0.05 level of significance, the null hypothesis was rejected. Therefore, there was a statistically significant positive

relationship between play-based learning and attention span among kindergarten pupils in Apa LGA. This means that higher levels of exposure to play-based learning were associated with better attention span.

Hypothesis Two

H0₂: stated that play-based learning had no significant effect on memory recall.

Table 7: Independent-Samples t-Test of the Effect of Play-Based Learning on Memory Recall among Kindergarten Pupils

SN	Group	N	M	SD	Mean difference	t	df	p	Decision
A	Experimental	137	16.72	1.94	4.31	16.89	272	<0.001	Reject H0 ₂
B	Control	137	12.41	2.27					

Source: Field Survey, 2025.

Table 7, shows that pupils in the experimental group obtained a higher mean memory-recall score (M = 16.72, SD = 1.94)

than pupils in the control group (M = 12.41, SD = 2.27). The mean difference between the two groups was 4.31 points. The independent-samples t-test yielded $t(272) = 16.89, p < .001$.

Since the p-value is less than the 0.05 level of significance, the null hypothesis was rejected. Therefore, there was a statistically significant difference in memory recall between pupils exposed to play-based learning and those taught through conventional instruction. The higher mean score of the experimental group indicates that play-based learning was associated with better memory recall.

Hypothesis Three

H₀₃: stated that there was no significant difference in cognitive skills development between pupils exposed to play-based learning and those taught conventionally.

Table 8. Independent-Samples t-Test of the Difference in Cognitive Skills Development between Experimental and Control Groups

SN	Group	N	M	SD	Mean difference	t	df	P	Decision
A	Experimental	137	73.65	8.16	15.81	15.20	272	<0.001	Reject H ₀₃
B	Control	137	57.84	9.04					

Source: Field Survey, 2025.

Table 8 indicates that the experimental group recorded a higher mean cognitive skills score (M = 73.65, SD = 8.16) than the control group (M = 57.84, SD = 9.04). The mean difference was 15.81 points in favour of the experimental group. The independent-samples t-test produced $t(272) = 15.20$, $p < .001$. Since the p-value is less than 0.05, the null hypothesis was rejected. Therefore, there was a statistically significant difference in cognitive skills development between kindergarten pupils exposed to play-based learning and those taught through conventional instruction.

Discussion of Findings

The first finding showed a significant positive relationship between play-based learning and attention span. The result suggests that pupils who experienced more purposeful play-based activities tended to demonstrate better attention. This may be explained by the active nature of play: children must listen, observe, follow rules, monitor materials and sustain engagement in order to participate successfully. The finding is consistent with Diamond's (2013) account of executive functions and with evidence that preschool attention-persistence is associated with later educational outcomes (McClelland et al., 2013).

The second finding demonstrated a significant effect of play-based learning on memory recall. The experimental group recorded a gain of 6.88 points compared with 2.70 for the control group. Play may support memory because children encounter information repeatedly and in meaningful contexts. Storytelling, matching, sequencing, songs, games and role play require children to retrieve information while simultaneously engaging with concrete materials and social interaction.

The third finding showed a significant difference in overall cognitive skills between the experimental and control groups. The experimental group recorded a post-test mean of 73.65 compared with 57.84 for the control group. This result suggests that structured play-based learning can provide a

stronger environment for developing cognitive skills than conventional instruction alone.

The finding supports the direction of Nigerian policy and programmed initiatives. UNICEF reports that Nigeria adopted learning through play in 2016 and subsequently used curriculum reform, teacher training and supportive supervision to strengthen implementation. UNESCO also documents a Nigerian programmed emphasizing play-based curriculum, teacher capacity and low-cost culturally appropriate materials.

The findings also reinforce the importance of implementation quality. Play does not automatically produce learning merely because an activity is enjoyable. Teachers need to select appropriate activities, define learning goals, provide scaffolding, observe children's responses and adjust tasks.

Conclusion

The study examined the influence of play-based learning on cognitive skills development among kindergarten pupils in Apa Local Government Area of Benue State. The results indicated a significant positive relationship between play-based learning and attention span, a significant effect on memory recall, and a significant difference in overall cognitive skills between pupils exposed to play-based learning and those taught conventionally.

The substantial improvement in the experimental group's cognitive performance indicates that structured play can serve as an effective instructional approach when it is intentionally linked to learning goals. Play should therefore not be regarded merely as recreation or a break from learning. Properly designed play can provide opportunities for children to explore, remember, reason, classify, communicate and solve problems.

Recommendations

- i. Schools should provide age-appropriate play materials such as blocks, puzzles, picture cards, sorting materials, games and locally produced manipulative.
- ii. Teacher education institutions should strengthen practical preparation in guided play, classroom observation and assessment of play-based learning.
- iii. Government and education authorities should provide regular professional development and supportive supervision for kindergarten teachers.
- iv. School administrators should allocate sufficient time and safe space for structured play within the kindergarten timetable.
- v. Parents should be sensitized to the educational value of play and encouraged to provide constructive play opportunities at home.
- vi. Curriculum developers should promote culturally relevant play activities using local stories, songs, games and readily available materials.

Implications of the Study

For teachers, the findings imply that play can be used intentionally to develop cognitive skills. For teacher educators, they reinforce the need for practical training in play pedagogy. For school administrators, they emphasize the importance of materials, time and supervision. For curriculum planners and policymakers, they support continued investment in developmentally appropriate, culturally responsive and play-based early childhood education.

Limitations of the Study

The study was limited to kindergarten pupils in Apa Local Government Area of Benue State, so generalization to other Nigerian contexts should be made cautiously. The eight-week intervention was adequate for observing short-term changes but may not establish long-term retention of gains. Differences in school facilities, teacher experience, classroom conditions and availability of play materials may also have affected implementation. In addition, the quasi-experimental design cannot eliminate all possible pre-existing differences between groups.

The use of teacher questionnaire data also introduces the possibility of response bias. Although classroom observations were used to complement questionnaire information, the number and timing of observations may not capture every aspect of daily practice. Future studies should therefore combine longer interventions, repeated observations, objective fidelity measures and randomized or matched designs where feasible.

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