

## Impact of Play-Based Learning on School Readiness and Physical Activity among Preschool Children in Oyo West Local Government Area, Nigeria

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### ABSTRACT

This study investigated the effects of play-based learning on school readiness and physical activity among preschool children in Oyo West Local Government Area, Oyo State, Nigeria. The research examined how developmentally appropriate teaching methods can be effective in preparing children for formal schooling. A convergent parallel mixed-methods design was employed, incorporating a quasi-experimental component alongside qualitative classroom observations and teacher interviews. The sample comprised 200 preschool children aged 4–5 years and 20 teachers drawn from public and private Early Childhood Care, Development, and Education (ECCDE) centres, selected through multistage sampling. Data collection instruments included the Play-Based Learning Observation Checklist (PBLOC), the School Readiness Assessment Scale (SRAS), and a semi-structured interview guide. Quantitative data were analyzed using descriptive statistics, linear regression, Pearson Product Moment Correlation, and independent-sample t-tests; qualitative data were subjected to thematic analysis.

Findings indicated that play-based learning was a significant predictor of school readiness ( $\beta = .47$ ,  $t = 7.39$ ,  $p < .001$ ), explaining 46.5% of the variance ( $R^2 = .465$ ). Although play-based learning and physical activity showed a positive association, the relationship was not statistically significant ( $r = .131$ ,  $p = .065$ ). Children exposed to play-based learning demonstrated significantly higher school readiness scores than those taught through traditional methods ( $t = 3.857$ ,  $p < .05$ ). The study concludes that play-based learning is an effective instructional approach for preparing preschool children for formal schooling and recommends expanded access to play materials and improved teacher training.

**Keywords:** Play-based learning; school readiness; physical activity; preschool children; early childhood education; Nigeria; Oyo State

### 1. INTRODUCTION

Preschool children's school readiness encompasses the development of cognitive, social-emotional, physical, and foundational academic skills necessary for a successful transition to formal schooling. Recent research has emphasized that the concept of readiness should encompass executive functions such as working memory, flexible thinking, and self-regulation, which are effective predictors of future

school success (Hirsh-Pasek et al., 2020; Brock et al., 2021). In Nigeria, persistent inequalities in access to early childhood education—particularly between rural and urban settings—continue to constrain the development of language, attention, and behavioral control among preschool-aged children (Okafor & Adebayo, 2022).

Physical activity is an essential component of school readiness, contributing to motor coordination, health, attention control, and behavioral self-regulation. Structured and unstructured movement experiences support cognitive and socio-behavioral development in young children (Tschopp et al., 2021; Gray et al., 2020). However, many Nigerian preschoolers—particularly those from low-income backgrounds—experience limited opportunities for active play, with consequences for attentional capacity and indicators of school preparedness (Eze & Nwankwo, 2023).

Play-based learning (PBL) has emerged as a developmentally appropriate pedagogical model that integrates intentional play with instructional goals to promote holistic child development. Play enables children to acquire knowledge through exploration, imagination, and social interaction, fostering independence and confidence within meaningful learning contexts (Setyowati et al., 2025). Empirical evidence from Nigeria and internationally indicates that structured play environments enhance creativity, problem-solving, motivation, and academic preparedness among preschool learners (Adeyemi & Afolabi, 2023; Ourda, 2025). Play-based learning has further been associated with improvements across domains of school readiness including literacy, numeracy, executive functioning, empathy, and cooperation (Wolf et al., 2025; Butler, 2024; Fyffe et al., 2022).

The theoretical foundations of this study rest upon Piaget's (1936) Constructivist Theory and Gesell's (1940) Motor Development Theory. Piaget's constructivism holds that children build knowledge through interaction, exploration, and play—justifying play-based learning as a vehicle for cognitive preparedness and problem-solving development. Gesell's theory emphasizes the progressive nature of physical development, wherein movement experiences develop the coordination, attention, and task engagement essential for school participation. Together, these frameworks explain the interaction between play-based learning and physical activity in supporting holistic school readiness.

Despite previous investigations of play-based learning in relation to selected developmental outcomes, few studies have empirically examined its effects on both school readiness and physical activity simultaneously, or compared readiness outcomes between play-based and traditionally taught learners within a Nigerian local context. This study addresses these gaps by examining the extent to which play-based learning affects school readiness, establishing the relationship between play-based learning and physical activity levels, and determining differences in school readiness between play-based and traditionally instructed learners.

## **2. METHODOLOGY**

This research employed a convergent parallel mixed-methods design to determine the effects of play-based learning on school readiness and physical activity among preschool children. The quantitative strand utilized a quasi-experimental design with non-equivalent groups, comparing children taught through play-based learning with those instructed through traditional methods. The qualitative strand incorporated classroom observations and semi-structured teacher interviews to generate contextual understanding of implementation practices and challenges (Creswell & Plano Clark, 2018).

The study population comprised preschool children and teachers in selected public and privately owned ECCDE centres in Oyo State, Nigeria, estimated at 1,200 pupils and 80 teachers (Oyo State Ministry of Education, 2024). Multistage sampling was employed to select 200 preschool children aged 4–5 years and 20 teachers. Two Local Government Areas were randomly selected; within each, two

preschools were chosen—one operating under a play-based approach and one under traditional instruction. Purposive sampling was applied to select eligible children and their teachers.

The Play-Based Learning Observation Checklist (PBLOC) was developed to evaluate guided, free, collaborative, and physically engaged play activities. The School Readiness Assessment Scale (SRAS), adapted from the Early Development Instrument, assessed cognitive, language, socio-emotional, physical, and learning approach domains on a four-point Likert scale. Face and content validity were established through expert review at the Federal College of Education (Special), Oyo. Reliability testing via a pilot study yielded Cronbach Alpha coefficients of 0.81 (PBLOC) and 0.85 (SRAS), indicating satisfactory internal consistency (Fraenkel & Wallen, 2016). Data were collected over three weeks through classroom observation, individual readiness testing, and teacher interviews, following institutional approval. Descriptive and inferential statistics (Pearson Product Moment Correlation, linear regression, independent-sample t-tests) were applied to quantitative data; thematic analysis was applied to interview transcripts. Ethical considerations included informed consent from school authorities, teachers, and parents; assurance of confidentiality; and compliance with child protection standards.

### 3. RESULTS

#### 3.1 Research Question 1: Influence of Play-Based Learning on School Readiness

A simple linear regression was conducted to examine the influence of play-based learning on school readiness among preschool children in Oyo West. Results are presented in Table 1.

**Table 1: Linear Regression Analysis of the Influence of Play-Based Learning on School Readiness**

Model	B (Unstd.)	Std. Error	Beta (Std.)	t	Sig.
Play-Based Learning	.987	.134	.465	7.385	.001

Note:  $R^2 = .465$ ,  $F(1, 198) = 54.54$ ,  $p < .001$ . Dependent variable: School Readiness.

The model was statistically significant,  $F(1, 198) = 54.54$ ,  $p < .001$ , explaining 46.5% of the variance in school readiness scores ( $R^2 = .465$ ). Play-based learning was identified as a significant predictor of school readiness ( $\beta = .47$ ,  $t = 7.39$ ,  $p < .001$ ), indicating that increased engagement in play-based learning significantly improves school readiness outcomes.

#### 3.2 Research Question 2: Relationship between Play-Based Learning and Physical Activity

A Pearson Product Moment Correlation was conducted to examine the relationship between play-based learning and physical activity levels. Results are presented in Table 2.

**Table 2: Pearson Correlation between Play-Based Learning and Physical Activity**

Variable	Statistic	Physical Activity	Play-Based Learning
Physical Activity	Pearson r	1	.131
	Sig. (2-tailed)	—	.065
	N	200	200
Play-Based Learning	Pearson r	.131	1
	Sig. (2-tailed)	.065	—
	N	200	200

Note:  $N = 200$ .  $**p < .05$  (two-tailed).

Results indicated a weak positive correlation between play-based learning and physical activity,  $r(198) = .131$ ,  $p = .065$ . Although the correlation suggests that higher exposure to play-based learning is associated with slightly increased physical activity, the relationship was not statistically significant at the .05 level. There is therefore insufficient evidence to conclude that play-based learning is significantly associated with physical activity levels in this sample.

### 3.3 Research Question 3: Difference in School Readiness between Play-Based and Traditional Learners

An independent-sample t-test was conducted to determine whether children exposed to play-based learning differed significantly in school readiness from those taught through traditional methods. Results are presented in Table 3.

**Table 3: Independent-Sample T-Test: School Readiness by Instructional Method**

Variable	Group	N	Mean	SD	df	t	Sig.
School Readiness	Play-Based	171	66.74	9.907	198	3.857	.001 (Sig.)
	Traditional	29	62.62	3.560			

Note:  $df = 198$ .  $Sig. = .001$  (two-tailed).

School readiness differed significantly between children in play-based learning environments and those taught through traditional methods ( $t = 3.857$ ,  $df = 198$ ,  $p < .05$ ). Children in play-based settings recorded a higher mean score ( $\bar{x} = 66.74$ ,  $SD = 9.91$ ) than children in traditional settings ( $\bar{x} = 62.62$ ,  $SD = 3.56$ ), indicating that play-based learning produces significantly better school readiness outcomes.

### 3.4 Qualitative Findings

Thematic analysis of teacher interviews yielded four main themes. First, regarding “teachers’ understanding of play-based learning,” the majority of respondents demonstrated a clear understanding of play-based learning as a child-centered approach. One teacher explained: “Play-based learning is a phenomenon where children learn through doing things such as games, singing, and acting—they do not feel that they are in an awful class, yet they are learning.” Second, on “typical play-based activities in classrooms,” teachers reported using storytelling, role-play, singing with actions, counting games, puzzles, drawing, and outdoor play, though some noted integrating play with traditional approaches due to curriculum requirements. Third, regarding “play-based learning and physical activity,” movement-based activities such as dancing, running, jumping, and clapping games were commonly incorporated, but overcrowded classrooms and limited outdoor space constrained vigorous physical engagement. Fourth, on “play-based learning and school readiness,” teachers consistently reported improvements in language skills, confidence, social interaction, and self-regulation, noting that children exposed to play-based learning demonstrated greater communicative competence, emotional balance, and cooperative behavior.

## 4. DISCUSSION

The findings of this study confirm that play-based learning is a significant predictor of school readiness among preschool children in Oyo West, a result consistent with the broader international literature demonstrating positive associations between play-based pedagogy and cognitive, socio-emotional, and language development in early childhood (Hirsh-Pasek et al., 2020; Gica et al., 2025; Parker et al., 2022). The regression analysis showed that play-based learning accounted for 46.5% of the variance in

school readiness scores—a substantive effect that underscores the instructional significance of play in early years education. The qualitative data corroborated these quantitative findings: teachers observed improvements in language development, social skills, confidence, and motor abilities among children engaged in play-based activities, and noted that storytelling, role-play, singing, and group games facilitated meaningful peer interaction and spontaneous cognitive engagement.

The non-significant correlation between play-based learning and physical activity ( $r = .131$ ,  $p = .065$ ) requires careful interpretation. While movement-based activities were present in play-based classrooms, structural constraints—overcrowded classrooms, limited play materials, and restricted outdoor space—constrained the intensity and duration of physical engagement. This finding aligns with international research indicating that environmental and infrastructural context mediates the relationship between play-based pedagogy and physical activity outcomes (Tschopp et al., 2021; Webster et al., 2023). In high-resource settings, organized outdoor activities and well-equipped play areas tend to strengthen this relationship; the current findings highlight how systemic constraints can limit the physical benefits of play-based pedagogy even when its cognitive and social benefits remain robust.

The significant difference in school readiness between play-based and traditionally taught children ( $t = 3.857$ ,  $p < .05$ ) reinforces the pedagogical superiority of child-centered approaches over teacher-centered instruction for holistic early childhood development. Children in play-based settings demonstrated greater confidence, communicative competence, creativity, and emotional balance, consistent with findings from both Nigerian and international studies (Lillard et al., 2019; Obijiofor et al., 2024). Teachers observed that traditional classrooms tended toward passivity, whereas play-based environments fostered self-regulation, exploration, and social interaction—qualities directly associated with school readiness. The success of play-based learning in Oyo West despite resource constraints suggests that instructional approach, teacher facilitation, and engagement strategies are key determinants of effectiveness, a finding with important implications for low-resource contexts internationally.

Qualitative data further illuminated implementation challenges, including inadequate instructional time, high pupil-teacher ratios, limited play materials, curriculum pressure, and parental expectations of formal academic instruction. These findings echo documented barriers in low-resource early childhood settings and underscore the necessity of professional development, administrative support, and parental sensitization for the successful scaling of play-based approaches (Fleer, 2020; Lazzara et al., 2025).

## 5. CONCLUSION

This study provides empirical evidence that play-based learning is an effective instructional approach for enhancing school readiness among preschool children in Oyo West, Nigeria. Children exposed to play-based learning demonstrated significantly higher school readiness scores than those taught through traditional methods, confirming the developmental and pedagogical value of child-centered approaches in early childhood education. While a positive but non-significant association was found between play-based learning and physical activity, this finding reflects contextual constraints rather than a fundamental limitation of the approach, and points to the importance of addressing infrastructural and environmental barriers to fully realize the physical benefits of play-based pedagogy.

The study recommends that school administrators ensure adequate provision of age-appropriate play materials and facilities to facilitate effective play-based learning. Teachers should receive targeted professional development in the design and implementation of play-based instructional strategies. School administrations should allocate sufficient time for play-based activities within the preschool curriculum and provide the institutional support necessary for sustainable implementation. Future

research should employ longitudinal designs to track the long-term school readiness and academic outcomes of children with varied early childhood instructional experiences, and should investigate the role of parental and community engagement in supporting play-based approaches in low-resource Nigerian contexts.

#### DECLARATIONS

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