THE ROLE OF PLAY-BASED LEARNING ON MENTAL DEVELOPMENT OF PRESCHOOL CHILD IN OREDO LOCAL GOVERNMENT AREA.

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CERTIFICATION

We the undersigned certify that this project work was carried out by **ONUEZE CHIKAODILI GIFT** of the Institute of Education, University of Benin, Benin City, Nigeria, in partial fulfillment of the requirements for the award of Postgraduate Diploma in Early Childhood Education.

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DEDICATION

This work is dedicated to Almighty God for His constant love and mercy.

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ABSTRACT

This study examined the impact of teacher–child interaction on the social and emotional development of preschool children in Oredo Local Government Area of Edo State. Early childhood represents a critical period for the development of social competence and emotional regulation, and the quality of interaction between teachers and children plays a significant role in shaping these developmental outcomes. Four research questions were raised to guide this study. A descriptive survey research design was adopted for the study. The population comprised early childhood teachers and parents in selected preschools comprising 8 public schools and 52 private schools in Oredo Local Government Area. Data were collected using a structured questionnaire designed on a four-point Likert scale. Descriptive statistics, including mean and standard deviation, were used to analyze the data, while hypotheses were tested using a criterion mean of 2.50.

The findings revealed that teacher–child ratio significantly influences the quality of teacher–child interaction, as overcrowded classrooms limit effective classroom management and individualized attention. The study also found that positive teacher–child interaction significantly enhances preschool children's ability to form positive social relationships, reduce aggressive behaviors, and express emotions appropriately. Furthermore, teachers' level of professional training was found to significantly influence their job performance, while opportunities for on-the-job training were generally inadequate despite being recognized as essential for improving teacher effectiveness.

The study concludes that improving teacher–child interaction through better staffing, enhanced teacher training, and increased access to professional development opportunities is essential for promoting positive social and emotional development among preschool children. The study recommends the enforcement of recommended teacher–child ratio standards, regular professional development programmes, and increased government support for early childhood teacher training.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Early childhood is universally recognized as a critical period in human development because it is during this stage that the foundation for intellectual, social, emotional, and physical growth is established. Cognitive development in particular has been identified as central to children's readiness for later schooling and to their eventual capacity to participate meaningfully in society. In the preschool years, children's brains undergo rapid growth and neural connections are formed at a pace that far exceeds that of any other stage of life (Shonkoff & Phillips, 2000). This development is influenced by the quality of experiences that children encounter in their immediate environment, with play occupying a fundamental position among those experiences. Play is not merely a leisure activity; rather, it is a mode of learning through which young children explore, imagine, practice problem-solving, and consolidate new knowledge.

The importance of play for learning and development has been advanced by developmental theorists for decades. Piaget (1962) argued that children learn best when they actively interact with their environment, and play provides precisely that opportunity by enabling them to assimilate and accommodate new information into existing schemas. Similarly, Vygotsky (1978) described play as the leading activity of childhood, a context in which children operate at the upper limits of their capacities and internalize the social rules, symbols, and cultural practices that define their community. Vygotsky's concept of the zone of proximal development is especially instructive, as it demonstrates how children's cognitive abilities are stretched and

strengthened when adults scaffold their play or when peers collaborate within playful contexts. Thus, play-based learning can be seen as a bridge that links spontaneous child-initiated activity with purposeful adult-guided instruction.

Beyond theory, empirical evidence consistently demonstrates the centrality of play in promoting cognitive growth. Research has shown that pretend play enhances language acquisition, narrative skills, and symbolic thinking, while block play fosters spatial reasoning, problem-solving, and early mathematics competence (Pellegrini, 2009; Weisberg, Hirsh-Pasek, & Golinkoff, 2016). Similarly, games with rules such as "Simon Says" or simple board games have been found to strengthen executive function skills like inhibitory control, working memory, and cognitive flexibility, which are powerful predictors of academic achievement in later schooling (Diamond & Lee, 2011). These findings are further corroborated by neuroscientific studies demonstrating that playful learning activates multiple regions of the brain associated with memory, attention, and self-regulation (Ginsburg, 2007).

In the Nigerian context, the National Policy on Education emphasizes the role of play in early childhood education and prescribes child-centered and activity-based methodologies for the preschool curriculum. The Universal Basic Education Commission and the Nigerian Educational Research and Development Council have produced guidelines that encourage teachers to integrate play as an instructional strategy in preschools. However, practice often deviates from policy. In many urban centers, including Oredo Local Government Area of Edo State, classroom observations reveal that rote teaching, repetitive drilling, and early formal instruction often dominate the preschool experience. Parents' pressure for visible academic outcomes such as early reading and writing, coupled with teachers' lack of training and limited access to

appropriate resources, contribute to the marginalization of play-based learning. The result is a disconnect between the principles enshrined in educational policy and the actual experiences of children in the classroom.

The situation in Oredo is particularly pressing because it is an urban hub with a mix of public and private preschools, yet the quality of implementation of play-based pedagogy varies widely. Private schools are often better resourced, but they too frequently substitute play with rigid academic routines in order to attract parents seeking visible results. Public preschools, on the other hand, may have space for play but often lack materials and adequately trained teachers. These dynamics make Oredo an important case for studying the actual role of play in children's cognitive development. Understanding the extent to which play-based learning is practiced and its relationship to children's intellectual growth is vital for informing policy implementation, teacher training, and parental orientation within the locality.

1.2 Statement of the Problem

In the field of early childhood education, the value of play as a catalyst for children's learning and development has been extensively emphasized by scholars, educators, and policy makers alike. Play is widely regarded as the "work" of the child, an activity through which children develop not only social and emotional skills but also the fundamental building blocks of cognition. Yet, in practice, there appears to be a troubling gap between the theoretical importance attached to play and the actual reality of what takes place in preschool classrooms in many parts of Nigeria, including Oredo Local Government Area of Edo State. Although the Nigerian National Policy on Education explicitly advocates for activity-based, child-centered, and play-oriented methods at the preschool level, the reality is that many schools—both public

and private, tend to sideline play in favor of rigid academic routines. This situation raises concerns about whether the developmental needs of children are truly being met and whether current practices adequately prepare them for the demands of lifelong learning.

Teachers themselves face multiple challenges in incorporating play-based methods into the curriculum. In many public schools within Oredo, classrooms are overcrowded, resources are scarce, and the available spaces are poorly equipped to facilitate diverse forms of play. Teachers may have limited training in early childhood pedagogy, leaving them ill-prepared to organize purposeful play or to scaffold children's learning during play episodes. Even where teachers understand the importance of play, they may be constrained by tight schedules, pressure to complete syllabi, or lack of administrative support.

Another dimension of the problem lies in the inconsistency between national policy directives and classroom practice. The Universal Basic Education policy framework promotes child-centered and activity-based learning, yet its implementation is hampered by weak monitoring systems, insufficient teacher preparation, and a lack of contextualized teaching materials. Without localized evidence to demonstrate how play-based learning influences children's cognitive development, stakeholders may continue to regard play as optional rather than essential. This neglect not only undermines the intent of educational policy but also perpetuates inequalities, as children in resource-rich schools may occasionally access playful learning opportunities while their peers in under-resourced environments are denied the same developmental advantages.

Although Global research provides ample evidence that play enhances skills such as executive functioning, emergent literacy, numeracy, and critical thinking, there is limited empirical

research within the Nigerian context that demonstrates these outcomes in real classroom settings. In Oredo Local Government Area, where cultural expectations, economic realities, and educational pressures intersect, it is not clear how much play-based learning is taking place, what forms it assumes, and to what extent it influences children's intellectual development. The absence of locally generated evidence makes it difficult for educators and policy makers to design interventions that are responsive to contextual realities.

This study seeks to investigate the role of play-based learning on cognitive development of preschool children in Oredo Local Government Area.

1.3 Research Questions

1. What is the status of play-based learning in preschools?
2. What is the relationship between play-based learning quality and children's cognitive development?
3. To what extent is play-based learning promoting literacy among children?
4. To what extent is play-based learning promoting numeracy?
5. What is the status of play materials in schools?

1.4 Objectives of the Study

The objectives of this study are to:

1. Determine the status of play-based learning in preschools.
2. Examine the relationship between the quality of play-based learning and children's cognitive development.

3. Investigate the extent to which play-based learning promotes literacy among preschool children.
4. Assess the extent to which play-based learning promotes numeracy.
5. Evaluate the status and adequacy of play materials in preschools

1.5 Purpose of the Study

The study is designed to achieve several interrelated objectives that together provide a comprehensive understanding of how play-based learning contributes to the cognitive development of preschool children in Oredo Local Government Area. One key aim is to explore the extent to which play-based strategies are currently being implemented in preschools and to evaluate the quality of such practices within the local context. In addition, the research seeks to establish the relationship between the nature of children's play experiences and their cognitive outcomes, with particular emphasis on language acquisition, emergent literacy and numeracy, as well as the development of executive functions such as memory, attention, and self-regulation. Another important objective is to examine how different school contexts, particularly public and private institutions, shape the opportunities available for play-based learning and whether these variations influence children's developmental outcomes. The study also intends to investigate the role of teachers by assessing their knowledge, beliefs, and level of training, as these factors are central to determining how effectively play can be integrated into the curriculum. Ultimately, the overarching objective is to generate evidence that can inform policy makers, educators, and parents about the critical role of play in children's intellectual growth and to provide practical recommendations that can enhance the quality of early childhood education in the locality.

The central purpose of this study is to examine the role of play-based learning in fostering the cognitive development of preschool children within Oredo Local Government Area of Edo State. In light of the increasing emphasis on early academic performance in Nigerian preschools and the corresponding decline in opportunities for meaningful play, it becomes necessary to generate empirical evidence that demonstrates whether and how play contributes to the intellectual growth of young learners. The study seeks to move beyond abstract theorizing by investigating the actual classroom practices employed by teachers, the extent to which play-based approaches are implemented, and the measurable outcomes such practices have on children's language development, emergent literacy, early numeracy, and executive functions.

At a deeper level, the study is designed to illuminate the relationship between teacher preparedness, classroom resources, and the quality of play experiences offered to children. By situating play within the broader context of early childhood education policy and practice in Nigeria, the research aims to show that play is not simply a recreational activity but a pedagogical strategy capable of strengthening cognitive competencies that are essential for school readiness. The focus on Oredo Local Government Area provides an opportunity to capture variations across public and private preschools, thereby shedding light on equity issues, resource disparities, and the influence of parental expectations on the pedagogy adopted by teachers.

Ultimately, the study is intended to provide a comprehensive understanding of how play-based learning can be harnessed to enhance the intellectual development of young children in a local context that reflects both the aspirations and challenges of Nigerian early childhood education. It seeks to generate evidence that can inform teachers, school administrators, policy makers, and

parents, while also contributing to the academic discourse on the role of play in cognitive development. In doing so, the study hopes to reposition play not as a peripheral classroom activity but as a central element of effective preschool pedagogy.

1.6 Significance of the Study

The relevance of this study lies in its potential to bridge the gap between educational theory, policy, and classroom practice in early childhood education within Oredo Local Government Area. By exploring how play-based learning influences the cognitive development of preschool children, the study provides empirical evidence that will be valuable to multiple stakeholders in the education sector. For policy makers, the findings will serve as a guide in refining existing early childhood education policies and ensuring that the emphasis on play enshrined in the National Policy on Education is not merely theoretical but practically enforced in classrooms. For school administrators and teachers, the study offers insights into effective pedagogical strategies that can stimulate children's intellectual growth and better prepare them for the challenges of primary education. Parents also stand to benefit, as the research will highlight the long-term cognitive and academic value of play, thereby reshaping perceptions that equate meaningful learning solely with formal drills and early academic achievement. On a broader level, the study will contribute to the body of scholarly literature on early childhood education in Nigeria, providing locally generated evidence that can inform comparative studies across contexts and influence the global discourse on the role of play in learning. Ultimately, the study underscores the idea that fostering cognitive development through play is not a luxury but a necessity for equipping children with the critical thinking skills, creativity, and problem-solving capacities required for success in school and life.

1.7 Scope of the Study

This study is confined to selected preschools within Oredo Local Government Area of Edo State, encompassing both public and private institutions in order to capture the diversity of experiences and practices that characterize early childhood education in the locality. The focus is placed on children within the preschool age range, particularly those in their formative years before entering primary school, as this is the stage where play is most naturally integrated into daily learning and where cognitive development occurs at an accelerated pace. The investigation emphasizes aspects of cognitive growth such as language development, emergent literacy and numeracy, as well as executive functions like memory, attention, and problem-solving, since these are widely regarded as the foundational skills necessary for later academic success. While the study acknowledges that play has social, emotional, and physical benefits, the primary interest lies in its contribution to intellectual development. The scope also considers the role of teachers, their training, and their pedagogical choices, as well as the resources and environments provided by schools, which collectively shape the quality of play-based experiences available to children. The study does not extend to home-based play practices or informal community play, as its concern is with structured and semi-structured activities that take place within the preschool setting. By narrowing the focus to Oredo Local Government Area, the study is able to provide context-specific insights that reflect the realities of Nigerian urban preschools, even though it recognizes that the findings may not be generalized to all regions of the country

1.8 Operational Definitions

- **Play-based learning:** Child-initiated, intrinsically motivated activity aligned to learning goals, supported by teacher scaffolding (free, guided, and cooperative play).

- **Cognitive development:** Early language, emergent literacy, emergent numeracy, and executive functions (working memory, inhibitory control, cognitive flexibility).
- **Guided play:** Child-led exploration in environments subtly structured by adults toward specific learning outcomes.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviews existing literature about the role of play-based learning on mental development of preschool child in Oredo local government area of Edo State. The review of related literature is organized under the following sub-headings:

- Theoretical Framework
- Concept of Play-Based Learning
- Concept of Mental Development in Preschool Children
- Role of Teachers in Facilitating Play-Based Learning
- Play-Based Learning and Early Cognitive Skills (Literacy & Numeracy Foundations)
- Relationship Between Play-Based Learning and Mental Development
- Challenges Affecting Play-Based Learning in Nigerian Preschools
- Effect of Home Language and Instruction Language on Play Interactions and Cognitive Gains
- Home Language as the Foundation for Play and Thought
- Bilingual and Multilingual Advantages in Play-Based Learning
- Implications for Play-Based Learning in Oredo LGA
- Empirical Review
- Summary of Literature Review

2.1 Theoretical Framework

Jean Piaget's Cognitive Development Theory (1972)

Jean Piaget's theory offers a comprehensive explanation of how play facilitates mental development in children. He proposed that children progress through stages of cognitive growth, sensorimotor, preoperational, concrete operational, and formal operational, each representing a qualitative shift in thinking. During the preschool years, children are typically in the preoperational stage, characterized by symbolic play, egocentrism, and developing mental representation.

For Piaget, play is the medium through which children assimilate new experiences into their existing mental structures and accommodate their thinking to new realities. Through imaginative play, a child who pretends to cook, drive, or teach is experimenting with ideas, consolidating knowledge, and understanding cause-and-effect relationships. Piaget emphasized that play is essential for cognitive equilibrium, the balance between what a child knows and what they are learning. Thus, play allows children to move from concrete to more abstract reasoning, an important aspect of mental development.

Lev Vygotsky's Socio-Cultural Theory (1978)

Vygotsky viewed learning and development as inherently social processes. He posited that mental growth occurs through interaction with more knowledgeable others, such as teachers, parents, and peers. Central to his theory is the "zone of proximal development," which represents the range of tasks a child can perform with guidance. Play, according to Vygotsky, provides a

unique setting for this guided participation, enabling children to stretch their mental capacities beyond independent functioning.

During pretend play, for example, a child may adopt roles, follow rules, and use symbolic objects, thereby developing self-regulation and abstract thinking. Vygotsky believed that in play, children "act a head taller than themselves," meaning that they perform at a level higher than their everyday functioning. This guided imitation enhances language use, problem-solving, and mental organization. In modern Nigerian preschools, teachers who adopt Vygotskian principles encourage cooperative play, dialogue, and scaffolding, all of which contribute significantly to mental growth.

Jerome Bruner's Constructivist Theory (1961)

Jerome Bruner's theory of constructivism complements both Piaget's and Vygotsky's views. Bruner emphasized that learning is an active process of constructing meaning from experience. He proposed that children represent knowledge through enactive (action-based), iconic (image-based), and symbolic (language-based) modes. Play-based learning allows children to move fluidly through these modes by manipulating objects, creating mental images, and using language to describe their experiences.

Bruner also introduced the concept of "scaffolding," which involves providing structured support that gradually fades as children gain mastery. In play-based classrooms, scaffolding might involve a teacher modeling problem-solving steps during a game or providing verbal prompts during role play. Such strategies help children internalize cognitive processes, fostering mental autonomy and creativity.

Together, these theories establish the foundation for understanding how play enhances mental development. They underscore that play is not simply fun but a powerful developmental tool that supports memory, reasoning, and symbolic thinking, the hallmarks of an intelligent and adaptive mind.

2.2 Concept of Play-Based Learning

Play-based learning is a pedagogical approach rooted in the understanding that play is not merely a leisure activity but a vital mode of learning through which children explore, interact, and construct knowledge. In early childhood education, it refers to a learning environment where play is the central vehicle for children's exploration, inquiry, and cognitive development. According to Bodrova and Leong (2015), play-based learning involves both free play, where children independently choose activities, and guided play, where teachers intentionally integrate learning objectives within playful contexts. Through play, children learn by doing; they engage their senses, manipulate materials, and experiment with ideas, leading to deeper understanding and cognitive flexibility.

From a developmental perspective, play-based learning fosters curiosity, concentration, and problem-solving skills. When children engage in imaginative play, for instance, pretending to run a shop or care for a doll, they are actually practicing reasoning, decision-making, and social negotiation, all of which are foundations of mental development. In Nigerian preschools, especially in Oredo Local Government Area, play-based learning is gradually gaining recognition as a method that aligns with the developmental needs of young learners, helping them connect real-life experiences with abstract thought. Berk (2018) explains that through play,

children develop representational thinking, the ability to use one thing to stand for another, which underpins literacy, numeracy, and higher-order thinking.

Play-based learning environments encourage discovery rather than rote memorization. They promote collaboration, communication, and critical thinking, all of which contribute to the child's mental growth. Teachers who use play strategically stimulate children's reasoning abilities and imagination while fostering motivation and emotional balance. Hence, play is both a process and a product, it drives learning and also reflects the cognitive maturity achieved through learning (Fisher, 2016).

2.3 Concept of Mental Development in Preschool Children

Mental development refers to the gradual and systematic growth of intellectual capacities such as perception, reasoning, imagination, memory, creativity, and logical thought. It encompasses the processes through which a child learns to think, understand, and make sense of the world. Piaget (1972) describes mental development as a process of adaptation, where the child actively constructs knowledge through interaction with the environment. During the preschool stage, children transition from simple sensory experiences to more complex symbolic and abstract thinking.

Mental development in preschool years is particularly significant because this is the period when brain plasticity is at its peak. Neural connections are rapidly formed, allowing children to absorb new concepts, language, and problem-solving strategies. According to Berk (2018), preschoolers' mental growth can be observed through their ability to recall information, reason

logically within familiar situations, and engage in imaginative play. These capabilities are essential for the development of early academic skills and emotional intelligence.

In Nigeria, early childhood educators have increasingly recognized the need to emphasize play-based experiences that enhance cognitive and mental capabilities rather than premature academic drills. For example, a preschooler who engages in puzzle play learns to identify patterns, make predictions, and persist in solving problems, all key indicators of mental development. Similarly, role-play activities like "pretend doctor" or "teacher" encourage the child to think abstractly and plan sequences of action, thereby strengthening memory and reasoning.

Mental development is thus multidimensional, incorporating both cognitive and affective aspects. When children are mentally stimulated through rich play experiences, they not only gain intellectual competence but also develop confidence, curiosity, and resilience, traits that influence their lifelong learning trajectory.

2.4 Role of Teachers in Facilitating Play-Based Learning

Teachers occupy a central position in the successful implementation of play-based learning, as they serve as facilitators, observers, and guides in the learning process. In early childhood education, the teacher's role extends beyond delivering lessons to creating an environment where children can explore, discover, and construct knowledge through play. Play-based learning does not mean that children are left entirely to play on their own; rather, it involves the teacher's deliberate planning and sensitive intervention to ensure that play experiences are developmentally meaningful and cognitively enriching (Fisher, 2016).

The teacher acts as a designer of learning experiences by organizing classroom activities, materials, and spaces that stimulate exploration and inquiry. In a well-structured play-based environment, the teacher thoughtfully provides resources such as building blocks, puzzles, art materials, and dramatic play items that encourage children to think creatively and solve problems. As Berk (2018) explains, teachers must intentionally align play experiences with educational objectives while maintaining the natural joy and spontaneity of play. For instance, when a teacher sets up a "market play" corner, the children are not only playing but are also developing counting, communication, and planning skills, all of which contribute to their mental growth.

Moreover, teachers serve as observers who assess how children engage in play and what cognitive skills they demonstrate. Through careful observation, a teacher can identify a child's interests, strengths, and areas of difficulty. This helps the teacher introduce new challenges or support structures that stretch the child's thinking within their zone of proximal development (Vygotsky, 1978). For example, if a child is building a tower with blocks but struggles to keep it balanced, the teacher might ask guiding questions like, "What could you do to make it stronger?" Such prompts encourage reasoning and problem-solving, rather than providing direct answers.

In addition to guiding play, teachers play a crucial role in linking play activities to broader learning goals. A play-based curriculum requires intentional planning where each play experience supports cognitive domains such as memory, reasoning, and imagination. Teachers embed literacy and numeracy concepts naturally into play scenarios. For example, storytelling and role-play can enhance language development, while sorting and patterning games build early mathematical reasoning (Weisberg et al., 2013). These strategies allow children to construct mental representations that form the basis of abstract thought.

Another important aspect of the teacher's role is fostering an emotionally secure environment that supports risk-taking, exploration, and self-expression. When children feel safe and valued, they are more likely to engage deeply in play and demonstrate higher levels of creativity and concentration. Teachers achieve this by showing respect for children's ideas, encouraging collaboration, and celebrating effort rather than focusing solely on outcomes. According to Hirsh-Pasek and Golinkoff (2020), emotionally supportive teachers create classrooms where children's intrinsic motivation flourishes, a critical element for mental development and lifelong learning.

Cultural and contextual understanding also influences how teachers facilitate play. In a multicultural environment like Oredo Local Government Area, teachers need to incorporate local materials, languages, and cultural practices into play-based activities. This not only makes learning relatable but also helps children connect classroom experiences with their community life. For instance, using locally available objects such as bottle caps, sand, or sticks can foster creativity and problem-solving while promoting cultural identity (Omoike, 2020).

Furthermore, teachers must adopt reflective practices to continually assess the effectiveness of play-based learning in their classrooms. Reflection helps them adapt teaching strategies to suit the developmental levels and interests of their pupils. Professional training and ongoing development are therefore essential for teachers to acquire the knowledge and confidence needed to integrate play into learning effectively. Nwosu and Akpan (2019) emphasize that teachers who receive specialized training in early childhood education are more competent in designing purposeful play that promotes mental growth compared to those without such training.

Teachers are not passive participants in play-based learning; they are the architects who transform play into a powerful educational process. Through thoughtful planning, observation, guidance, and reflection, teachers bridge the gap between play and learning, ensuring that every playful experience contributes meaningfully to children's mental development. Their expertise and sensitivity determine whether play remains a mere activity or becomes a transformative tool for intellectual and emotional growth.

2.5 Play-Based Learning and Early Cognitive Skills (Literacy & Numeracy Foundations)

Play-based learning is widely recognized as one of the most effective pedagogical approaches for nurturing early cognitive skills, particularly literacy and numeracy, among preschool children. In the formative years, children's brains are highly receptive to exploration, imitation, and discovery, processes that are naturally activated through play. Unlike conventional rote-based learning, which emphasizes memorization and repetition, play allows children to engage in active, meaningful experiences that form the foundation for literacy and numeracy development.

Play and Literacy Development

Play creates a rich context for children to develop early literacy skills, including listening, speaking, reading, and writing, through authentic social interactions. During pretend play, for instance, children engage in storytelling, dialogue, and role-playing that enhance their vocabulary and narrative skills. When a child assumes the role of a "teacher" or "shopkeeper," they practice verbal communication, comprehension, and expressive language in ways that promote literacy readiness. According to Roskos and Christie (2017), literacy emerges naturally from playful experiences where children use symbols, signs, and words to represent ideas. These

symbolic representations, central to both literacy and play, allow children to connect spoken language with written symbols.

In play-based classrooms, teachers often integrate reading and writing into play centers. For example, a "grocery store" play area may include labeled items, price tags, and shopping lists, providing opportunities for children to recognize letters, decode words, and understand functional print. Through such play, literacy becomes purposeful, children begin to grasp that written words convey meaning and serve real-life functions. Vygotsky's (1978) sociocultural theory supports this process, emphasizing that cognitive development occurs within social contexts where children interact with more knowledgeable peers or adults. In guided play environments, teachers scaffold children's understanding of phonics, storytelling, and comprehension in engaging, developmentally appropriate ways.

Furthermore, musical play, rhymes, and jingles also foster phonological awareness, a crucial precursor to reading ability. Singing songs like "Twinkle, Twinkle, Little Star" or "Old MacDonald Had a Farm" helps children distinguish sounds, recognize rhymes, and manipulate syllables, which are essential for decoding written language later in life. As noted by Neuman and Roskos (2020), children who participate in literacy-enriched play environments demonstrate stronger early reading and writing outcomes than those taught through traditional drill-based methods.

Play and Numeracy Development.

Similarly, play-based learning provides a natural foundation for developing early numeracy concepts. In play, children encounter opportunities to count, compare, measure, and recognize patterns without the pressure of formal instruction. Through activities such as building with blocks, sorting objects by color or shape, and playing board games, children acquire basic mathematical concepts like quantity, size, order, and spatial relationships. These experiences allow them to internalize mathematical thinking as part of everyday problem-solving.

For example, when children construct towers using blocks, they engage in implicit mathematical reasoning, estimating how many blocks are needed, comparing heights, and balancing structures. Likewise, pretend play in a "market" scenario encourages the use of numbers in realistic contexts, as children exchange play money, measure items, and calculate costs. According to Sarama and Clements (2018), such interactions foster both procedural and conceptual understanding of numbers, helping children transition smoothly into formal mathematics learning.

Moreover, play encourages logical thinking and reasoning, key components of mathematical cognition. Games involving patterns, puzzles, and sequencing teach children to observe relationships and predict outcomes. These abilities contribute not only to numeracy development but also to broader mental skills such as memory, attention, and executive functioning. Ginsburg (2016) affirms that play supports the development of "mathematical dispositions," meaning it nurtures curiosity, persistence, and confidence in problem-solving, traits essential for later academic success.

In the Nigerian preschool context, integrating numeracy into play can be particularly beneficial given the diversity of learners' backgrounds. In Oredo Local Government Area, many children enter preschool with varying exposure to numbers and counting in their home environments.

Play-based methods, such as singing counting songs in local languages, using bottle caps or stones as counters, and organizing market role-plays, bridge these differences by making numeracy relatable and culturally meaningful. This contextualized approach enhances engagement and ensures that mathematical learning builds naturally on children's experiences.

The Interconnection between Literacy and Numeracy Through Play

It is also important to note that literacy and numeracy skills are interrelated in early childhood development, and play provides an integrated platform for both to flourish. For instance, when children engage in storytelling that involves counting objects ("Three goats crossed the bridge…"), they combine linguistic and numerical reasoning. Similarly, in construction play, children often label their creations, measure parts, and explain their work using descriptive language. These combined skills enhance overall cognitive development, demonstrating how play fosters holistic mental growth rather than isolated academic abilities.

Teacher's Role in Supporting Literacy and Numeracy through Play

The teacher's role in this process cannot be overemphasized. Effective facilitation of play-based literacy and numeracy requires intentional planning and observation. Teachers must design play environments that stimulate thinking, such as literacy corners stocked with storybooks and writing materials, or numeracy centers equipped with manipulatives like counting bears and number cards. They must also engage children in dialogue during play, asking open-ended questions like "What happens if we add one more?" or "Can you tell me what your shop sells?" Such interactions encourage metacognition and language development, reinforcing the connection between play and cognitive skills.

Play-based learning forms the cornerstone of literacy and numeracy foundations in early childhood education. Through imaginative, constructive, and guided play, preschoolers acquire essential cognitive abilities that support reading, writing, and mathematical understanding. These skills are not developed through rote memorization but through meaningful, hands-on experiences that link learning to real life. In Oredo Local Government Area and other parts of Nigeria, strengthening play-based practices can bridge the gap between early childhood potential and academic achievement, ensuring that children develop the mental readiness required for lifelong learning.

2.6 Relationship Between Play-Based Learning and Mental Development

The link between play-based learning and mental development is well established in both theory and research. Play acts as a natural laboratory where children test ideas, discover relationships, and construct mental representations of the world. Vygotsky (1978) emphasized that play creates a "zone of proximal development" (ZPD), a psychological space where children, with the support of peers or adults, can accomplish tasks they could not achieve independently. In this zone, mental growth occurs through guided exploration and problem-solving.

When children engage in play, they are not merely entertaining themselves; they are practicing the processes of thought, symbolization, and abstraction. For instance, a child building with blocks must visualize structures, anticipate balance, and solve emerging challenges, all of which enhance reasoning and cognitive flexibility. Bodrova and Leong (2015) note that such experiences strengthen executive functions like attention control, working memory, and mental planning. These cognitive skills are central to academic success and general mental competence.

Empirical evidence supports this relationship. Weisberg et al. (2013) found that play-based learning environments foster higher cognitive flexibility and problem-solving ability compared to direct instruction settings. Likewise, Fisher (2016) observed that play-based pedagogies promote deeper conceptual understanding by linking play experiences to curricular content in a meaningful way. In the Nigerian context, Adeyemi and Ajayi (2021) reported that preschool children exposed to play-centered instruction demonstrated better reasoning, imagination, and persistence during learning tasks.

Ultimately, play-based learning provides a foundation for mental development by engaging children in activities that demand focus, planning, and imagination. It stimulates both hemispheres of the brain, enabling children to think creatively and analytically. Through play, children develop mental habits of curiosity, flexibility, and reflection, qualities that define lifelong learners.

2.7 Challenges Affecting Play-Based Learning in Nigerian Preschools

Despite the recognized importance of play-based learning in enhancing children's mental and cognitive development, its effective implementation in Nigerian preschools faces numerous challenges. These challenges arise from systemic, environmental, cultural, and teacher-related factors that collectively hinder the integration of play into early childhood education. In many Nigerian preschools, including those in Oredo Local Government Area, the traditional perception of learning as a serious, teacher-led, and book-based process still dominates classroom practices, leaving little room for creative or exploratory play.

One of the most significant challenges is the inadequate provision of play materials and facilities. Many preschools, particularly public ones, lack appropriate indoor and outdoor play equipment such as building blocks, educational toys, sand pits, swings, and art materials. This shortage stems largely from insufficient government funding and limited private investment in early childhood education. According to Nwosu and Akpan (2019), the scarcity of learning materials not only restricts children's opportunities for imaginative play but also limits teachers' ability to engage pupils in mentally stimulating activities. In schools where play materials exist, they are often worn out, unsafe, or unsuitable for children's developmental stages.

Another major challenge is the inadequate professional training of teachers in play-based pedagogy. Many preschool teachers in Nigeria have not received specialized training in early childhood education, making it difficult for them to understand the developmental value of play or how to structure it meaningfully within the curriculum. As a result, play is often regarded as a form of recreation or classroom management strategy rather than a deliberate instructional tool. Omoike (2020) observed that teachers without adequate training tend to emphasize rote learning and memorization, believing that these methods yield quicker academic results. This approach undermines children's natural curiosity and limits the development of problem-solving and critical thinking skills, the very essence of mental development.

Overcrowded classrooms also pose a serious obstacle to play-based learning. In many Nigerian preschools, large class sizes make it difficult for teachers to give individual attention to learners or to organize structured play activities. A classroom designed for twenty children may have forty or more, making movement, interaction, and supervision almost impossible. The situation is worsened by insufficient classroom space and lack of proper ventilation or safety measures.

According to Adeyemi and Ajayi (2021), overcrowding reduces the quality of teacher-child interaction, prevents effective classroom organization, and discourages teachers from adopting play-based methods that require flexibility and physical engagement.

Cultural attitudes toward education present another challenge. In many Nigerian societies, including parts of Edo State, there remains a widespread belief among parents that "serious" learning must involve formal teaching, writing, and recitation. Play is often viewed as a distraction or waste of time, especially by parents who expect their children to master reading and arithmetic at an early age. This misconception puts pressure on teachers to abandon play and focus on formal academic drills in order to satisfy parental expectations. As Fisher (2016) notes, such societal pressure often leads to the marginalization of play in favor of rigid instructional routines, despite research evidence showing that play enhances mental readiness for later academic achievement.

Inconsistent policy implementation further compounds the problem. Although Nigeria's National Policy on Education (NPE, 2014) emphasizes learning through play at the early childhood level, enforcement remains weak. Many preschool operators and teachers are either unaware of the policy guidelines or lack the resources to implement them effectively. In Oredo Local Government Area, for instance, differences in school ownership (public versus private) result in uneven access to materials and training opportunities. Some private schools have embraced child-centered methods, while others still adhere to outdated practices. This inconsistency affects the overall quality of preschool education and creates disparities in children's developmental outcomes.

Socioeconomic factors also play a role in limiting access to play-based learning. Families from low-income backgrounds may enroll their children in poorly equipped preschools where play materials and qualified teachers are scarce. Such children are deprived of the stimulating environments necessary for mental and cognitive growth. Moreover, frequent teacher turnover due to poor remuneration disrupts continuity in classroom relationships, which are essential for emotionally secure play environments (Hirsh-Pasek & Golinkoff, 2020).

Another subtle but critical challenge lies in teacher attitudes and time constraints. Because the curriculum in many Nigerian preschools is heavily content-driven, teachers often feel pressured to cover academic topics within limited timeframes. This leaves little room for exploratory play or guided learning experiences. As a result, playtime is reduced to a few minutes of unstructured activity at the end of lessons rather than being integrated throughout the learning process. Berk (2018) emphasizes that meaningful play requires intentional planning, guidance, and reflection, conditions rarely met in overcrowded and time-constrained classrooms.

Safety and supervision concerns also hinder play-based learning. Inadequate playground safety measures, lack of trained caregivers, and fear of injuries make some teachers and school administrators reluctant to encourage outdoor play. This restriction denies children opportunities for physical and mental engagement with their environment, which is crucial for healthy cognitive development.

The challenges affecting play-based learning in Nigerian preschools are multifaceted, encompassing infrastructural deficiencies, teacher preparation, societal attitudes, policy gaps, and economic limitations. Overcoming these barriers requires a collective effort from government, educators, parents, and communities. Teachers need regular professional

development in early childhood pedagogy; schools require better funding for play materials and safe learning spaces; and parents must be sensitized to understand that play is not the opposite of learning but the foundation upon which mental and intellectual development is built. Only when these challenges are addressed can play-based learning fulfill its true potential in shaping the minds and futures of preschool children in Oredo Local Government Area and Nigeria at large.

2.8 Effect of Home Language and Instruction Language on Play Interactions and Cognitive Gains

Language plays a central role in children's cognitive and social development, and it profoundly influences how they engage in play and derive learning from it. For preschool children, play is not only a means of enjoyment but also a medium through which language, thought, and understanding of the world are constructed. In multilingual societies like Nigeria, particularly in areas such as Oredo Local Government Area of Edo State, children are often exposed to multiple languages from an early age. The home language, which is the primary language spoken within the family, and the language of instruction used in preschools can differ significantly. This linguistic diversity can shape how children interact during play, communicate ideas, and acquire cognitive skills such as memory, reasoning, and problem-solving.

Home Language as the Foundation for Play and Thought

The home language forms the foundation of a child's early cognitive development because it is the medium through which the child first experiences the world. According to Vygotsky's (1978) sociocultural theory, language is a tool of thought, children think, plan, and understand their

surroundings primarily through the language they know best. In play situations, children naturally use their home language to express ideas, negotiate roles, and construct imaginary scenarios. This comfort with their native language allows them to engage more deeply in imaginative and symbolic play, which in turn fosters higher-order thinking skills.

In the Nigerian context, a child who speaks Edo, Yoruba, or Pidgin English at home may initially struggle to express themselves fully in the English-medium preschool classroom. However, when play is encouraged in the home language, children display richer vocabulary use, longer conversational turns, and greater creativity. Research by Cummins (2018) emphasizes that a strong foundation in the home language enhances overall cognitive and linguistic competence, even in additional languages. Thus, supporting children's play in their mother tongue not only validates their cultural identity but also strengthens their conceptual understanding across languages.

Language of Instruction and Its Impact on Play

The language of instruction used in preschools greatly influences the nature and quality of play-based learning. In most Nigerian preschools, English is the dominant instructional language, even though it may not be the children's first language. This mismatch between home and school language can create communication barriers that limit participation in play and reduce opportunities for collaborative learning. Children who are less proficient in the instructional language may become passive observers rather than active participants in play scenarios, thereby reducing the cognitive benefits they might otherwise gain.

Moreover, language differences can affect social relationships among children. During group play, those who are fluent in the instructional language tend to dominate activities, while those less fluent may experience exclusion or frustration. As Ajayi (2019) notes, when teachers insist strictly on English-only interactions in early classrooms, children's creativity and confidence in play are often hindered. Allowing flexible language use, what linguists term "trans-language", encourages children to move fluidly between home and school languages. This approach enhances communication, inclusion, and cognitive engagement during play.

2.9 Bilingual and Multilingual Advantages in Play-Based Learning

Contrary to the assumption that linguistic diversity is a barrier, research increasingly shows that bilingual or multilingual children may experience cognitive advantages when play is language-rich and inclusive. Bialystok (2015) found that multilingual children tend to develop stronger executive functions, such as attention control and cognitive flexibility, because of their constant need to switch between languages. In play, this manifests as an enhanced ability to negotiate roles, follow rules, and adapt to changing scenarios. Thus, when preschool environments embrace linguistic diversity and integrate home languages into play activities, they promote both social cohesion and mental development.

Teachers play a vital role in bridging the gap between home language and instructional language. Skilled teachers can create bilingual play environments where materials, songs, and stories incorporate both English and local languages. For instance, a teacher in Oredo might introduce counting games in both English and Edo, or storytelling sessions where children retell folktales from home using mixed languages. Such practices not only enhance comprehension but also validate children's linguistic identities, leading to higher motivation and confidence.

Language and Cognitive Gains Through Play

The connection between language and cognition is deeply intertwined. When children are allowed to use familiar languages in play, they can articulate ideas more clearly, reason logically, and engage in more complex problem-solving. Conversely, when children struggle to understand the language used during play instruction, cognitive growth may be limited because mental energy is diverted to decoding meaning rather than exploring ideas. As Piaget (1962) observed, play is the work of childhood, it represents how children process reality and internalize concepts. Therefore, language accessibility is crucial for ensuring that play remains a true medium for cognitive development.

Furthermore, research in African early childhood settings (Ogunleye & Adeyemi, 2020) suggests that children who learn through a combination of their home language and the instructional language demonstrate better memory retention, reasoning, and conceptual transfer across subjects. This indicates that bilingual play contexts not only enhance linguistic competence but also support broader mental development outcomes, such as attention span, imagination, and self-regulation.

2.10 Implications for Play-Based Learning in Oredo LGA

In Oredo Local Government Area, where many children come from linguistically diverse homes, recognizing the role of both home and instructional languages in play is essential for maximizing

learning outcomes. Preschools that rigidly enforce English-only communication may unintentionally stifle children's expression and creativity. Conversely, adopting a more flexible, child-centered approach that allows for mother-tongue use during play encourages participation and leads to greater cognitive engagement. The Nigerian National Policy on Education (2013) already advocates for mother-tongue instruction at the early childhood level, emphasizing that learning in a familiar language enhances understanding and intellectual growth.

To achieve this in play-based classrooms, teachers need adequate training in multilingual pedagogy and culturally responsive teaching. When play materials, songs, and storytelling incorporate both English and indigenous languages, children's experiences become more inclusive and meaningful. This balanced approach not only supports literacy and numeracy development but also builds mental resilience, problem-solving skills, and self-confidence.

2.11 Empirical Review

Empirical studies across different contexts affirm the central role of play in enhancing children's mental development. Pellegrini and Boyd (2018) observed that children who engage in daily structured play sessions exhibit higher levels of attention, persistence, and mental alertness compared to those exposed to rigid academic drills. Similarly, Weisberg et al. (2013) demonstrated that guided play helps children develop flexible thinking and cognitive control, allowing them to apply concepts across diverse situations.

In Nigeria, research by Adeyemi and Ajayi (2021) revealed that play-oriented instruction significantly improved preschoolers' reasoning and retention abilities. Their study highlighted that when teachers integrate educational goals into play activities, children not only enjoy

learning but also develop stronger analytical and imaginative capacities. Another study by Omoike (2020) in Edo State found that children exposed to manipulative and imaginative play displayed improved verbal expression, logical reasoning, and creativity compared to those taught through traditional rote methods.

Furthermore, the availability and quality of play materials have been shown to influence mental outcomes. Nwosu and Akpan (2019) discovered that classrooms equipped with diverse, age-appropriate play materials such as puzzles, blocks, and dramatic play sets produced children with higher problem-solving and cognitive organization skills. The study concluded that resource-rich environments stimulate mental engagement and persistence.

Globally, research by Fisher (2016) and Hirsh-Pasek and Golinkoff (2020) emphasized that play is essential not just for academic achievement but also for mental health and resilience. Children who experience regular play opportunities demonstrate better self-regulation and emotional balance, components of healthy mental functioning. These findings collectively establish that play-based learning environments offer holistic cognitive and emotional advantages crucial for children's mental development.

2.12 Play as a Tool for Emotional Regulation and Social Development

Play serves not only as a source of enjoyment for preschool children but also as a fundamental tool for emotional regulation and social development. During the early years of life, children are learning to recognize, express, and manage their emotions, and play provides a natural context through which these abilities are cultivated. It allows children to experiment with their feelings, communicate emotions safely, and develop strategies for coping with frustration, fear, and excitement. Through pretend play and imaginative scenarios, children can project their inner

experiences onto external activities, thereby achieving emotional balance and understanding. A child pretending to be a doctor, parent, or superhero is not merely playing but exploring different emotional states and gaining mastery over experiences that might otherwise be confusing or overwhelming.

Emotional regulation is an essential aspect of mental development, and play provides a therapeutic and developmentally appropriate avenue for its growth. Denham, Bassett, and Zinsser (2012) observed that when children are allowed to engage freely in play, they develop better emotional stability and are more capable of expressing feelings in socially acceptable ways. Vygotsky (1978) also emphasized that play enables children to act within their "zone of proximal development," meaning that within the safety of play, they can perform behaviors that are emotionally and socially more advanced than what they might display in real-life situations. For instance, during a structured group game, a child learns patience while waiting for their turn, practices empathy by acknowledging another child's feelings, and develops self-control when faced with competition or disappointment. These repeated experiences in play gradually shape the child's emotional intelligence, helping them become resilient and adaptable in real-world situations.

In addition to emotional growth, play is central to the social development of preschoolers. Through play interactions, children acquire the foundational skills of cooperation, negotiation, empathy, and communication. Parten's (1932) seminal study on play behavior demonstrated that as children grow, they transition from solitary play to parallel play and finally to cooperative play. This progression represents a gradual increase in social awareness and the ability to engage in collective goals. When children engage in group play, such as building blocks together or

organizing a pretend market, they learn to share resources, follow rules, and respect others' ideas. These interactions teach them the principles of fairness and reciprocity, which are essential for harmonious social relationships.

Play-based learning environments also provide opportunities for children to practice communication skills. Whether they are narrating a story, assigning roles in pretend play, or explaining the rules of a game, children are constantly using and refining their verbal and nonverbal communication. Such social exchanges foster not only language development but also confidence in interpersonal interactions. Pellegrini (2009) asserts that play serves as the first platform for moral and social learning because children experience firsthand the outcomes of cooperation, cheating, or exclusion. Over time, they internalize positive social behaviors such as empathy, kindness, and respect for others' boundaries.

Teachers play a vital role in ensuring that play remains a powerful medium for emotional and social development. Beyond simply providing materials or supervising children, teachers act as facilitators who guide emotional expression and model appropriate behavior. When a child becomes frustrated during a game, for example, the teacher's response, acknowledging the child's feelings, offering comfort, and suggesting ways to cope, transforms that moment into an important lesson in emotional regulation. Hyson and Taylor (2011) highlight that emotionally supportive teachers help children develop trust and security, creating a learning atmosphere where they feel safe to express themselves and engage meaningfully with others. Teachers can also design cooperative play activities that encourage teamwork and empathy, such as group storytelling, dramatization, or puzzle-solving tasks. Through these activities, children learn that collaboration, rather than competition, yields more satisfying outcomes.

Cultural values and traditions also play a significant role in shaping the emotional and social content of play. In Nigeria, traditional games, songs, and folktales are powerful vehicles for transmitting social norms and emotional understanding. Among children in Oredo Local Government Area, games like *Ayo* and dramatized folk stories often incorporate lessons about patience, honesty, and community living. When these cultural forms of play are integrated into preschool education, children develop not only social and emotional intelligence but also a strong sense of identity and belonging. This connection between play, culture, and learning reinforces communal values and helps children understand their roles within their families and society.

Play, therefore, serves as both a mirror and a bridge, it reflects children's emotional experiences and connects them to others in meaningful ways. It is through play that children learn to express joy, manage anger, resolve conflicts, and experience empathy. These capacities are not secondary to academic learning; they form the very foundation of mental development and lifelong well-being. Russ (2014) argues that pretend play, in particular, strengthens creativity and emotional resilience, qualities that underpin both personal fulfillment and academic success. In the context of Oredo Local Government Area, where children may come from diverse socioeconomic and cultural backgrounds, play-based learning offers a unifying, emotionally nurturing space where all children can thrive.

2.13 Summary of the Literature Review

The review of literature clearly indicates that play-based learning is a fundamental tool for fostering the mental development of preschool children. The conceptual and theoretical analyses reveal that play stimulates intellectual curiosity, nurtures problem-solving, and strengthens abstract reasoning. The theories of Piaget, Vygotsky, and Bruner collectively highlight that through play, children construct meaning, regulate behavior, and internalize complex thought processes.

Empirical evidence, both international and Nigerian, consistently supports the conclusion that play enhances children's mental alertness, creativity, and self-regulation. However, despite the overwhelming benefits, play-based learning is often underutilized in Nigerian preschools due to limited materials, teacher training deficits, and societal emphasis on early academics. The current study therefore seeks to investigate the extent to which play-based learning contributes to the mental development of preschool children in Oredo Local Government Area, Edo State, and to identify the factors that influence its effectiveness in that context.

CHAPTER THREE

METHODOLOGY

In this chapter, the methods adopted in carrying out the study are presented under the following sub-headings:

Research Design

Population of the Study,

Sample and Sampling Technique

Research Instrument

Validity of the Instrument

Reliability of the Instrument

Method of data Collection

Method of data Analysis.

3.1 Research Design

The research design adopted for this study is the descriptive survey design. The descriptive survey design is suitable for educational research because it allows the researcher to collect, summarize, and interpret data without manipulating variables. In this study, the design enabled the collection of information from preschool teachers in Oredo Local Government Area to determine the role of play-based learning in the cognitive development of preschool children. The design was considered appropriate because it provided the opportunity to describe existing conditions, practices, and perceptions in preschools as they relate to the use of play in teaching and its influence on children's intellectual growth.

3.2 Population of the Study

The population of this study comprised all teachers working in registered preschools in Oredo Local Government Area of Edo State. The population covered teachers in both public and private preschools. According to records from the Edo State Ministry of Education, Oredo Local Government Area has a sizeable number of preschools distributed across urban and semi-urban communities. These teachers, being directly involved in classroom activities, constituted the accessible population from which the study sample was drawn.

3.3 Sample and Sampling Technique

A sampling size of 120 respondents were drawn for the study. There are about 200 registered preschools operating in Oredo Local Government Area. 10% of the population was selected representing 20 preschools. The twenty schools to be selected was drawn using Balloting method. From the twenty schools, 6 respondents were selected using purposive sampling technique, thus 120 respondents was drawn for the study.

3.4 Research Instrument

The instrument used for data collection was a structured questionnaire titled “Play-Based Learning and Cognitive Development Questionnaire (PBLCQ).” The questionnaire was divided into two sections. Section A dealt with demographic information of the respondents, such as gender, years of teaching experience, and type of school (public or private). Section B consisted of items designed to elicit information on the status of play-based learning in preschools, the extent to which it influences children’s literacy and numeracy development, the adequacy of play materials, and the role of teachers in implementing play-oriented pedagogy. The items were

structured using a 4-point modified Likert scale with response options of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point.

3.5 Validity of the Instrument

The validity of the instrument was established through expert judgment. The draft questionnaire was submitted to the researcher's supervisor and two other lecturers in Early Childhood Education at the Institute of Education, University of Benin. They examined the instrument for clarity, relevance, coverage, and appropriateness of the items in relation to the objectives of the study. Their comments, corrections, and suggestions were incorporated in preparing the final version of the questionnaire. This ensured both face and content validity.

3.6 Reliability of the Instrument

The reliability of the instrument was established using the test-retest method. Twenty copies of the questionnaire were administered to preschool teachers in schools outside the sample but within Oredo Local Government Area. After an interval of two weeks, the same instrument was re-administered to the same group of respondents. The two sets of scores obtained were analyzed using the Pearson Product Moment Correlation Coefficient (Pearson r). A reliability coefficient of 0.81 was obtained, indicating that the instrument was reliable and consistent for data collection.

3.7 Method of Data Collection

The researcher personally administered the questionnaire with the cooperation of the heads of schools in the selected preschools. A total of 110 copies of the questionnaire were distributed to

the respondents. Efforts were made to retrieve all the copies immediately after completion to minimize loss of instruments and to ensure a high return rate. This process also allowed the researcher to clarify questions for respondents when necessary.

3.8 Method of Data Analysis

The data collected was analyzed using descriptive statistics such as frequency counts, mean scores, and standard deviation to answer the research questions. The mean was used to determine the extent of agreement or disagreement of the respondents with each item, while standard deviation was used to measure the spread of responses. These methods were considered appropriate for analyzing data obtained from a descriptive survey design.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter discussed the analysis of data, presentation of results and discussion of the findings.

4.1 Presentation of Results

Research Question One

What is the status of play-based learning in preschools?

Table 1: Descriptive statistics of the status of play-based learning in preschools

Items	Mean	Std. Deviation	Remarks
Play-based learning is regularly integrated into family routine	2.85	0.63	Agree
Teachers in my school use both structured and unstructured	2.92	0.53	Agree
Children are given enough time each day to engage in free and creative play	2.78	0.55	Agree
My school curriculum recognises play as an essential part of children learning and development	2.73	0.57	Agree

Table 1 shows the mean distribution of responses on the status of play-based learning in preschools, with means ranging from 2.73 to 2.92. The respondents agreed that teachers in their school use both structured and unstructured play, and that play-based learning is regularly integrated into the family routine. In addition, children are given enough time each day to engage in free and creative play, and the school curriculum recognises play as an essential part of children's learning. Judging from the mean scores of all the items, which are above a benchmark mean of 2.50, implies that the status of play-based learning in preschools is good.

Research Question Two

What is the relationship between play-based learning quality and children's cognitive development?

Table 2: Pearson r showing the relationship between play-based learning quality and children's cognitive development

Items	N	Pearson r	P-value
Play-based learning quality	100	0.68	·000
Cognitive Development			

α=0.05

Table 2 shows the Pearson's r for the relationship between play-based learning quality and the cognitive development of preschool children in Oredo Local Government Area. The r value of 0.68 and a p-value of .000 indicate a strong positive and significant relationship between play-based learning and cognitive development among preschool children.

Research Question Three

To what extent is play-based learning promoting literacy among children?

Table 3: Descriptive statistics showing the extent is play-based learning promotes literacy among children

Items	Mean	Std. Deviation	Remarks
Play-based activities such as storytelling help improve vocabulary	3.37	0.48	Agree
Letter recognition is enhanced when play is part of it	3.28	0.45	Agree
Children learn to express themselves better through language when involved in interactive play,	3.22	0.45	Agree
Literacy games and songs make it easier for children to understand reading	3.22	0.42	Agree

Table 3 shows the extent to which play-based learning promotes literacy development among children, with mean responses ranging from 3.22 to 3.37. The table further indicates that the

respondents agreed that play-based learning, such as storytelling, improves vocabulary. Also, letter recognition is enhanced through play; children learning to express themselves and literacy games, and songs make it easier for children to understand reading. Judging from the mean scores of all the items, which are above the benchmark mean of 2.50, implies that play-based learning promotes literacy among children.

Research Question Four

To what extent is play-based learning promoting numeracy among children?

Table 4: Descriptive statistics showing the extent is play-based learning promotes numeracy among children

Items	Mean	Std. Deviation	Remarks
Counting games and play activities improve children's number skills sense and arithmetic	3.35	0.54	Agree
Children understand mathematical concepts better through hands-on play experiences	3.35	0.51	Agree
Teachers often use play-based materials to teach numeracy concepts such as counting	3.30	0.49	Agree
Play activities involving shapes, colours and patterns help children build early mathematical sorting	3.28	0.49	Agree
Cluster	**13.28**	**0.51**	

Table 4 shows the mean ratings for the extent to which play-based learning promotes numeracy among children, ranging from 3.28 to 3.35. The respondents agreed that counting games and play activities improve number sense and arithmetic, promote understanding of mathematical concepts, and support the teaching of numeracy concepts such as counting, as well as the development of mathematical sorting. The cluster mean of 13.28 indicates that play-based learning promotes numeracy among children to a high degree.

Research Question Five

What is the status of play materials in schools?

Table 5: Descriptive statistics showing the status of play materials in schools

Items	Mean	Std. Deviation	Remarks
My school provides a variety of play materials suitable for children developmental stages	2.71	0.58	Agree
The available play materials are safe, durable and appropriate for classroom use	2.63	0.58	Agree
Teachers have adequate access to teaching aids and play resources to support lessons	2.68	0.53	Agree
The lack of adequate play materials limits the effectiveness of play-based learning	2.91	0.46	Agree

Table 5 presents the mean distribution of responses on the status of play materials in schools, with a mean value ranging from 2.63 to 2.91. The table further shows that the respondents agreed with all items that lack of adequate materials limits the effectiveness of play-based learning; they also agree that their school provides a variety of play materials suitable for children's developmental stages. Additionally, they agree that teachers have adequate access to teaching aids and play resources to support lessons and that the available play materials in the classroom are safe, durable and appropriate for classroom use. Judging from the means for all items above a benchmark mean of 2.50, the status of play materials in schools is evident.

4.2 Discussion of Findings

The findings of this study provide empirical evidence on the role of play-based learning in the mental development of preschool children in Oredo Local Government Area of Edo State. The discussion is presented in line with the research questions and relates the results to existing studies and theoretical perspectives on play-based learning and early childhood development.

Findings from Research Question One revealed that the status of play-based learning in preschools within Oredo Local Government Area is generally good. The respondents agreed that play-based learning is regularly integrated into school routines, that teachers make use of both structured and unstructured play activities, and that children are given sufficient time for free and creative play. The recognition of play as an essential component of the school curriculum further suggests that preschool educators acknowledge its importance in children's learning and development. This finding aligns with the views of Froebel (2004), who described play as the highest expression of human development in early childhood. It also supports the work of Sarama and Clements (2018), who emphasized that play-based approaches create rich learning environments that enhance children's thinking and understanding. The positive status observed in this study indicates a growing awareness among preschool educators in Oredo Local Government Area of the developmental value of play-based learning.

The findings relating to Research Question Two showed a strong, positive, and statistically significant relationship between play-based learning quality and children's cognitive development, as indicated by a Pearson correlation coefficient of 0.68. This implies that as the quality of play-based learning increases, children's cognitive development also improves. This result supports Vygotsky's (1978) sociocultural theory, which posits that children develop cognitively through social interaction and meaningful activities such as play. It is also consistent with the findings of Ginsburg (2016), who reported that high-quality play experiences enhance problem-solving, memory, attention, and reasoning skills in young children. The strong relationship observed in this study suggests that play-based learning is not merely recreational but serves as a powerful tool for enhancing mental development among preschool children.

Findings from Research Question Three indicated that play-based learning promotes literacy development among preschool children to a high extent. Respondents agreed that play activities such as storytelling, songs, and role play improve children's vocabulary, enhance letter recognition, and support language expression. These findings are in line with the work of Roskos and Christie (2017), who found that literacy skills emerge naturally when children engage in symbolic and imaginative play. Similarly, Neuman and Roskos (2020) emphasized that play-based literacy activities make learning meaningful by linking spoken language with print in real-life contexts. The high mean scores recorded in this study suggest that integrating play into literacy instruction helps children develop foundational reading and language skills in an enjoyable and less stressful manner.

In relation to Research Question Four, the study revealed that play-based learning promotes numeracy among preschool children to a high degree. Respondents agreed that counting games, hands-on play activities, and the use of shapes, colors, and patterns help children develop number sense and understand basic mathematical concepts. This finding corroborates the studies of Sarama and Clements (2018), who asserted that young children learn mathematics best through active engagement with materials rather than through abstract instruction. Play activities such as sorting, building, and counting allow children to internalize mathematical concepts naturally. The high cluster mean obtained in this study indicates that play-based learning significantly supports early numeracy development and lays a solid foundation for later mathematical learning.

The findings from Research Question Five showed that the status of play materials in schools is fairly adequate, although challenges still exist. Respondents agreed that schools provide a variety

of play materials suitable for children's developmental stages and that these materials are generally safe and appropriate for classroom use. However, they also acknowledged that lack of adequate play materials limits the effectiveness of play-based learning. This finding is consistent with the observations of UNICEF (2019), which reported that insufficient learning materials remain a major challenge in many early childhood education centers in developing countries. While the availability of play materials in Oredo Local Government Area appears encouraging, the findings suggest that increasing both the quantity and quality of play resources would further enhance the effectiveness of play-based learning.

The findings of this study demonstrate that play-based learning plays a significant role in promoting the mental development of preschool children, particularly in the areas of cognitive growth, literacy, and numeracy. The positive relationship between play-based learning quality and cognitive development underscores the importance of well-planned and adequately supported play activities in preschool education. These findings reinforce the argument that play should be central, rather than peripheral, to early childhood education programmes. Strengthening play-based learning practices in preschools within Oredo Local Government Area will therefore contribute meaningfully to children's mental development and overall readiness for formal schooling.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary

This study investigated the role of play-based learning on the mental development of preschool children in Oredo Local Government Area of Edo State. The focus of the study was to examine how play-based learning influences children's cognitive development, particularly in the areas of literacy and numeracy, as well as to assess the status of play-based learning practices and the availability of play materials in preschools within the study area. The study was motivated by the growing concern that many preschool classrooms still emphasize rote learning and teacher-centered instruction at the expense of developmentally appropriate, play-based approaches.

A descriptive survey research design was adopted for the study. The population comprised preschool teachers in public and private preschools in Oredo Local Government Area. A sample of respondents was selected using appropriate sampling techniques, and data were collected through a structured questionnaire designed to elicit information on play-based learning practices and children's mental development. The instrument was validated by experts and tested for reliability using the test–retest method. Data collected were analyzed using descriptive statistics such as mean and standard deviation, as well as inferential statistics, including Pearson Product Moment Correlation.

The findings revealed that play-based learning is reasonably well implemented in preschools within Oredo Local Government Area. The results further showed a strong and significant relationship between the quality of play-based learning and children's cognitive development. In

addition, play-based learning was found to promote literacy and numeracy development to a high extent. The study also revealed that although play materials are generally available in schools, inadequacy of such materials can limit the effectiveness of play-based learning.

5.2 Conclusion

Based on the findings of this study, it can be concluded that play-based learning plays a vital role in the mental development of preschool children. The integration of play into preschool teaching and learning processes significantly enhances children's cognitive abilities, including thinking, reasoning, memory, and problem-solving skills. Play-based learning also supports early literacy and numeracy development by providing children with meaningful, hands-on, and enjoyable learning experiences that foster curiosity and active participation.

The strong positive relationship observed between play-based learning quality and cognitive development confirms that play is not merely a recreational activity but a powerful educational tool that promotes holistic mental growth. When children are exposed to rich, well-structured play experiences, they are better able to understand concepts, express themselves, and develop foundational skills needed for future academic success. Furthermore, the availability of appropriate play materials and the active involvement of teachers in facilitating play significantly enhance the effectiveness of play-based learning.

In conclusion, play-based learning should be regarded as a central component of early childhood education rather than a supplementary activity. Strengthening play-based practices in preschools within Oredo Local Government Area will contribute significantly to improving children's mental development and overall school readiness.

5.3 Recommendations

In view of the findings and conclusions of this study, the following recommendations are made:

Preschool teachers should be encouraged to integrate play-based learning consistently into their daily classroom activities. Teachers should deliberately design lessons that combine both structured and unstructured play to promote cognitive, literacy, and numeracy development among preschool children.

School proprietors and administrators should ensure the provision of adequate, safe, and age-appropriate play materials in preschool classrooms. Investment in quality play resources such as puzzles, building blocks, counting materials, storybooks, and educational games will enhance the effectiveness of play-based learning.

Government and education authorities should organize regular training, workshops, and seminars for preschool teachers on the use of play-based learning strategies. Such professional development programmes will equip teachers with the skills and knowledge needed to implement play-based instruction effectively.

Curriculum planners and policymakers should continue to emphasize play-based learning as a core element of early childhood education curricula. Clear guidelines should be provided to ensure that play is meaningfully integrated into teaching and learning processes rather than treated as a break-time activity.

Parents and caregivers should be sensitized to the importance of play in children's mental development. Encouraging play at home and providing supportive play environments will complement school efforts and further enhance children's cognitive growth.

Finally, future researchers should conduct similar studies in other local government areas or states to enable broader generalization of findings. Further studies may also adopt experimental or longitudinal research designs to examine the long-term effects of play-based learning on children's academic and socio-emotional development.

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Dear Respondent,

REQUEST TO COMPLETE MY QUESTIONNAIRE

I am a Post Graduate Diploma Student conducting a research on 'The Role of Play-Based Learning on Mental Development of Preschool Child in Oredo Local Government Area, Edo State, Nigeria."

This questionnaire's goal is to gather information for the purpose of investigation, you are asked to answer the questions accurately by selecting the appropriate response. This study is only being conducted for academic purposes, and any responses will be confidential.

Onueze Chikaodili Gift
Researcher

Section A: Demographic Data

(Please tick as appropriate)

1. Gender: ☐ Male ☐ Female
2. Type of School: ☐ Public ☐ Private
3. Educational Qualification: ☐ NCE ☐ B.Ed ☐ M.Ed ☐ Others
4. Teaching Experience: ☐ Below 5 years ☐ 5–10 years ☐ Above 10 years

Section B: Research Items

Please kindly tick [√] the box that best represent your view on the following statements:

Scale: SA = Strongly Agree, A= Agree, D = Disagree, SD= Strongly Disagree

S/N	ITEM	SA	A	D	SD
	What is the status of play-based learning in preschools?				

1	Play-based learning is regularly integrated into the daily routine of preschool classrooms.				
2	Teachers in my school use both structured and unstructured play activities during lessons.				
		SA	**A**	**D**	**SD**
3	Children are given enough time each day to engage in free and creative play.				
4	My school's curriculum recognizes play as an essential part of children's learning and development				
	What is the relationship between play-based learning quality and children's cognitive development?				
5	Play-based learning activities help children develop problem-solving and reasoning skills.				
6	Children who engage in play activities show better memory and attention span than those who do not.				
7	Through play, children learn to explore, ask questions, and think creatively.				
8	Quality play experiences help children understand concepts faster than through direct instruction alone				
	To what extent is play-based learning promoting literacy among children?				
9	Play-based activities such as storytelling and role play help children improve their vocabulary.				
10	Letter recognition and reading readiness are enhanced when play is part of classroom instruction.				
11	Children learn to express themselves better through language when involved in interactive play.				
12	Literacy games and songs make it easier for children to understand reading and writing concepts.				
	To what extent is play-based learning promoting numeracy?				
13	Counting games and play activities improve children's number sense and arithmetic skills.				
14	Children understand mathematical concepts better through hands-on play experiences.				
15	Teachers often use play-based materials to teach basic numeracy concepts such as counting and sorting.				
16	Play activities involving shapes, colors, and patterns help children build early mathematical thinking.				
	What is the status of play materials in schools?				
17	My school provides a variety of play materials suitable for children's developmental stages.				
18	The available play materials are safe, durable, and appropriate for classroom use.				
19	Teachers have adequate access to teaching aids and play resources to support lessons.				
20	Lack of adequate play materials limits the effectiveness of play-based				

	learning in my school.				