



TEACHER CHARACTERISTICS AND PRE-PRIMARY CHILDREN'S NUMERACY AND LITERACY DEVELOPMENT IN IBADAN METROPOLIS, OYO STATE, NIGERIA

Tolulope Veronica Adebayo¹
veronicaadebayo2019@gmail.com
and

Prof. Monica Ngozi Odinko²

^{1&2} Department of Early Childhood Education, Faculty of Arts and Social Science Education,
Lead City University, Ibadan, Nigeria

ABSTRACT

Early childhood is a critical period for establishing the literacy and numeracy foundations on which later learning depends. This study examined teacher characteristics as determinants of pre-primary school children's numeracy and literacy development in Ibadan Metropolis, Oyo State, Nigeria. The study focused on teachers' academic qualifications, teaching methodology, professional skills, teacher-learner relationships, classroom management, utilisation of instructional materials, and class size. A descriptive survey research design was adopted. The study involved 140 pre-primary school teachers and 389 learners. Data were collected using a Teachers' Characteristics Questionnaire (TCQ) and a Numeracy and Literacy Development Test (NLAT). Descriptive statistics, Pearson Product Moment Correlation, Multiple Regression Analysis, and Independent Samples t-test were used to analyse the data at the 0.05 level of significance. The findings showed that teacher characteristics significantly influenced children's numeracy and literacy development. Academic qualifications significantly predicted learners' outcomes ($\beta = 0.362$, $p < 0.05$). Significant positive relationships were also reported for teaching methodology ($r = 0.421$, $p < 0.05$), professional skills ($r = 0.456$, $p < 0.05$), and classroom management ($r = 0.498$, $p < 0.05$). Class size also showed a significant difference in learners' outcomes ($t = 2.741$, $p < 0.05$). The study concludes that the quality of teachers and the conditions in which they teach matter substantially for children's early literacy and numeracy development. It recommends the employment of professionally qualified teachers, regular professional development, effective child-centred teaching approaches, adequate instructional resources, and manageable class sizes in pre-primary schools.

Keywords: Teacher characteristics; numeracy development; literacy development; pre-primary education; teacher quality; Ibadan Metropolis.

Introduction

Education forms the foundation for human development and is a critical driver of societal progress. In Nigeria, the early years of a child's life, particularly the pre-primary stage (ages 3–5 years), have been recognized as crucial for the acquisition of fundamental literacy and numeracy skills.



Education is widely recognized as the most important instrument for individual and societal development. It serves as a foundation for economic growth, social transformation, and the overall advancement of nations. In every society, education equips individuals with the knowledge, skills, attitudes, and competencies necessary for meaningful participation in social, economic, and political life. Within the educational system, the early years of a child's development are considered particularly crucial because they form the basis upon which later learning and development are built. Consequently, early childhood education has gained significant attention globally due to its role in shaping children's cognitive, social, emotional, and physical developmentⁱ.

Early childhood education (ECE) plays a pivotal role in shaping cognitive, social, and emotional development, providing children with the necessary skills to succeed in later stages of education and life. Education is widely recognized as the most important tool for individual and societal development. In Nigeria, early childhood education (ECE), particularly at the pre-primary level, forms the foundation for future learning and academic achievement. Pre-primary education targets children aged 3–5 years, a critical period for developing cognitive, social, and emotional skills. During this stage, children acquire foundational literacy skills, including letter recognition, phonemic awareness, vocabulary development, and emergent writing skills, as well as numeracy skills, such as counting, basic arithmetic, pattern recognition, and problem-solving abilitiesⁱⁱ.

Globally, research has consistently emphasized the importance of high-quality early childhood education in promoting children's learning outcomes. International organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Children's Fund (UNICEF) have highlighted the significance of early childhood development in achieving sustainable educational outcomes. Studies conducted in various parts of the world show that children who receive quality early childhood education demonstrate better literacy and numeracy competence, improved problem-solving skills, and stronger socio-emotional development compared to children who lack access to such educational opportunities. As a result, many countries have invested heavily in strengthening early childhood education programmes and improving teacher quality to ensure that young learners acquire the foundational skills necessary for lifelong learningⁱⁱⁱ.

The quality of pre-primary education in Nigeria, however, remains uneven. Many children enter primary school with inadequate literacy and numeracy skills, limiting their capacity to cope with the demands of formal education. Among the factors contributing to this challenge are teacher characteristics. Teacher characteristics encompass qualifications, teaching experience, pedagogical skills, and familiarity with educational technologies. Research shows that highly qualified and experienced teachers who employ child-centered instructional strategies significantly improve learning outcomes in literacy and numeracy. Conversely, teachers lacking



appropriate training or experience struggle to facilitate meaningful learning experiences for young children^{iv}.

Among the critical learning outcomes expected at the pre-primary level are literacy and numeracy development. Literacy development involves the acquisition of language-related skills that enable children to understand and communicate through reading and writing. It includes abilities such as recognizing letters of the alphabet, identifying sounds associated with letters, understanding basic vocabulary, and developing early writing skills. These abilities form the foundation for reading comprehension and effective communication in later educational stages. Early literacy experiences also foster creativity, imagination, and critical thinking, which are essential for intellectual growth^v.

Teacher characteristics such as educational qualification, teaching experience, pedagogical competence, and familiarity with technology are recognized as critical determinants of children's learning outcomes. Many studies have focused separately on teacher competence or resource provision but rarely examine the interaction between these factors in shaping early learning outcomes. Understanding this relationship is particularly important in Nigeria, where policy interventions aim to modernize pre-primary education and integrate technology into teaching practices^{vi}.

Teacher characteristics refer to the personal and professional attributes that teachers bring into the teaching and learning process. These characteristics include educational qualifications, teaching methodology, professional skills, teacher-learning relationship, classroom management and class size in early childhood education, attitudes toward teaching, and the ability to effectively manage the classroom environment. Qualified and well-trained teachers possess the knowledge and skills required to implement developmentally appropriate teaching methods that support children's cognitive and social development. Such teachers are better equipped to use interactive instructional strategies such as storytelling, play-based learning, songs, and games to promote literacy and numeracy development among young learners^{vii}.

Teacher qualification is one of the most important factors influencing the quality of teaching and learning in pre-primary education. Teacher qualification refers to the academic and professional credentials possessed by teachers that prepare them for effective classroom instruction. In early childhood education, qualified teachers are expected to possess specialized knowledge of child development, instructional strategies, classroom interaction, and assessment techniques suitable for young learners. Teachers with appropriate qualifications in early childhood education are more likely to understand how children learn and how to design activities that support literacy and numeracy development. Such teachers are able to introduce learning concepts using child-friendly approaches that promote active participation and understanding among learners.¹



In addition, qualified teachers are better equipped to identify individual learning differences among children and provide appropriate support to learners who may experience difficulties in acquiring literacy and numeracy skills. Their training exposes them to modern teaching approaches that encourage creativity, communication, and problem-solving abilities among children. On the other hand, teachers who lack professional qualifications may struggle to apply suitable instructional techniques, thereby limiting children's opportunities for effective learning and development. Studies have shown that children taught by qualified teachers often demonstrate higher academic performance and improved social development compared to those taught by unqualified teachers.

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Teacher methodology is another important determinant of children's literacy and numeracy development in pre-primary schools. Teacher methodology refers to the approaches, techniques, and strategies used by teachers during the teaching and learning process. In early childhood education, teaching methods should be activity-based, learner-centered, and developmentally appropriate because young children learn best through play, interaction, exploration, and participation. Effective teaching methodologies such as storytelling, role-play, songs, rhymes, games, demonstrations, and play-based learning help children understand concepts more easily and make learning enjoyable. ³

The use of interactive teaching methods encourages children to participate actively in classroom activities, thereby improving their communication skills, confidence, and understanding of literacy and numeracy concepts. For example, teachers who use songs and rhymes to teach alphabet sounds or counting activities help children retain information more effectively. Similarly, role-play and dramatization stimulate children's imagination and improve language development. Conversely, the use of rigid and teacher-centered instructional methods may reduce children's interest in learning and limit their ability to develop critical thinking and problem-solving skills. Therefore, the effectiveness of pre-primary education largely depends on the teaching methodologies adopted by teachers in the classroom. ⁴

Professional skills possessed by teachers also contribute significantly to children's learning outcomes in early childhood education. Professional skills refer to the competencies and abilities that enable teachers to perform their duties effectively. These skills include communication skills, classroom organization, lesson planning, creativity, assessment techniques, problem-solving ability, and the use of educational technology. Teachers with strong professional skills are able to create engaging learning environments that stimulate children's curiosity and encourage active learning. ⁵

Furthermore, professionally skilled teachers can effectively manage classroom activities and adapt teaching methods to suit the needs of different learners. They are capable of designing instructional activities that promote literacy and numeracy development while maintaining children's interest and attention throughout the lesson. Teachers who possess good communication skills are also



better able to explain concepts clearly and interact positively with children, thereby improving children's understanding and participation in learning activities. In contrast, teachers who lack professional skills may experience difficulties in maintaining effective classroom interaction, which may negatively affect children's academic progress and overall development.⁶

Teacher classroom management also plays a significant role in enhancing children's learning and development. Classroom management refers to the ability of teachers to organize and control classroom activities in ways that promote effective teaching and learning. Effective classroom management involves maintaining discipline, organizing learning materials, establishing classroom routines, managing learners' behavior, and creating a conducive learning environment. In pre-primary classrooms, effective management is particularly important because young children are naturally active, curious, and easily distracted.⁹

Teachers who possess strong classroom management skills are able to maintain order while allowing children the freedom to explore and participate actively in learning activities. Such teachers create structured and stimulating learning environments that encourage concentration, cooperation, and participation. Effective classroom management also minimizes disruptions and ensures that instructional time is used productively. In addition, well-managed classrooms provide opportunities for children to interact positively with one another, thereby promoting both academic and social development. Poor classroom management, however, may result in disorderliness, distraction, and reduced learning effectiveness, which can negatively affect children's literacy and numeracy acquisition.¹⁰

Class size serves as a moderating variable in this study because it may influence the extent to which teacher characteristics affect pre-primary school children's literacy and numeracy development. A moderating variable is a factor that affects the strength or direction of the relationship between independent and dependent variables. In the context of this study, teacher characteristics such as qualification, teaching methodology, professional skills, teacher-learners' relationship and classroom management skills may produce different learning outcomes depending on the size of the classroom.¹³

In early childhood education, class size refers to the number of learners assigned to a teacher within a classroom setting for instructional purposes. Small class sizes are often associated with improved teaching effectiveness because teachers are able to provide more individualized attention, closely monitor children's progress, and engage learners actively during classroom activities. In smaller classes, teachers can effectively implement child-centered teaching methods such as storytelling, role-play, songs, games, and group activities that support literacy and numeracy development. Children also have greater opportunities to interact with teachers, ask questions, and participate confidently in learning activities.¹⁴



Conversely, large class sizes may reduce the effectiveness of even highly qualified and experienced teachers. Overcrowded classrooms can limit teachers' ability to manage the class effectively, monitor individual learning needs, and provide adequate instructional support to all learners. In such situations, teachers may experience difficulties in maintaining discipline, organizing learning activities, and utilizing instructional materials effectively. As a result, the positive influence of teacher characteristics on children's literacy and numeracy development may be weakened in classrooms with excessive numbers of learners.¹⁵

Furthermore, class size may affect the quality of teacher-learners' relationships and classroom interaction. In smaller classes, teachers are more likely to establish warm and supportive relationships with learners, thereby promoting children's emotional security, motivation, and participation in learning. However, in larger classrooms, limited time and increased workload may reduce meaningful interaction between teachers and learners, which may negatively influence children's learning experiences and academic outcomes.¹⁶

In Nigeria, especially in many urban centres such as Ibadan Metropolis, increasing enrolment in pre-primary schools has contributed to overcrowded classrooms in some educational institutions. This situation creates challenges for teachers and may hinder the effective implementation of quality early childhood education programmes. Therefore, class size is considered an important moderating variable in this study because it may either strengthen or weaken the influence of teacher characteristics on pre-primary school children's literacy and numeracy development. Understanding the moderating role of class size will provide deeper insights into how classroom conditions affect the quality of teaching and learning outcomes in early childhood education.¹⁷

Similarly, numeracy development plays an important role in children's cognitive development during the early years. Numeracy refers to the ability to understand and use numbers and mathematical concepts in everyday situations. At the pre-primary stage, children begin to develop number sense, which involves recognizing numbers, counting objects, comparing quantities, identifying patterns, and solving simple mathematical problems. Early exposure to numeracy activities helps children develop logical reasoning and analytical thinking skills that are necessary for more advanced mathematical learning in later stages of education. Research indicates that children who develop strong numeracy skills in early childhood tend to perform better in mathematics and related subjects throughout their academic careers.

The achievement of these foundational literacy and numeracy skills largely depends on the quality of instruction provided in pre-primary classrooms. Among the various factors influencing children's learning outcomes, teacher characteristics have been identified as one of the most significant determinants of educational quality. Teachers serve as facilitators of learning, guiding children's exploration, curiosity, and interaction with their environment. In early childhood education, teachers play multiple roles including instructor, caregiver, mentor, and motivator.



Their ability to create stimulating learning environments, implement appropriate teaching strategies, and respond to children's individual learning needs significantly influences the effectiveness of early childhood education programmes.

Ibadan Metropolis, located in Oyo State, is one of the largest urban centers in southwestern Nigeria and hosts a large number of public and private pre-primary schools. The rapid growth of educational institutions in the metropolis has increased access to early childhood education for many families. However, concerns remain regarding the quality of teaching and learning experiences provided to children in these schools. Differences in teacher qualifications, teaching experience, pedagogical competence, and professional training may influence the effectiveness of literacy and numeracy instruction delivered to young learners. Given the critical role that teachers play in facilitating early learning, understanding how teacher characteristics influence children's literacy and numeracy development is essential for improving educational outcomes. Teachers who possess appropriate qualifications, adequate teaching experience, and effective pedagogical skills are more likely to provide stimulating learning environments that encourage children's active participation in literacy and numeracy activities. Conversely, teachers who lack these competencies may struggle to provide meaningful learning experiences that support children's cognitive development.

Despite the growing recognition of the importance of teacher characteristics in early childhood education, empirical studies examining their influence on children's literacy and numeracy development in Nigeria remain limited, particularly within the context of Ibadan Metropolis. Many previous studies have focused on general issues related to early childhood education without specifically examining how teacher-related factors influence foundational learning outcomes among pre-primary school children. Thus, this study investigated the extent to which teacher characteristics serve as determinants of pre-primary school children's literacy and numeracy development in Ibadan Metropolis, Oyo State.

Statement of the Problem

Literacy and numeracy are foundational competencies that influence academic success and lifelong learning. However, many Nigerian pre-primary school children enter primary education with insufficient literacy and numeracy skills, which adversely may affect their academic trajectory. Several studies have identified teacher quality and the availability of instructional resources as contributing factors to this problem.

In practice, many pre-primary schools employ teachers with limited qualifications or insufficient training in early childhood pedagogy. Consequently, children in these environments may not receive the interactive, engaging, and individualized instruction necessary for optimal literacy and numeracy development^{viii}. Furthermore, while some interventions have focused on improving



teacher competence or providing resources, there interventions may fail to address the root causes of poor pre-primary literacy and numeracy performance. This study, therefore, addresses the gap and investigated teacher characteristics as determinants of pre- primary school children numeracy and literacy development in Ibadan Metroplois, Oyo State.

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

Ho₁: There will be no significant influence of teachers' academic qualifications on pre-primary school children's literacy and numeracy development.

Ho₂: There will be no significant influence of teaching methodology on pre-primary school children's numeracy and literacy development.

Ho₃: There will be no significant influence of teachers' professional skills on pre-primary school children's numeracy and literacy development.

Ho₄: There will be no significant relationship between teachers' classroom management skills and the development of pre-primary school children's numeracy and literacy development.

Ho₅: There will be no significant class size difference on pre-primary school children's numeracy and literacy development.

Methodology

A descriptive survey research design was adopted. The study focused on pre-primary school teachers and children in Ibadan Metropolis, Oyo State. The geographical scope covered Ibadan North East, Ibadan South East, Ibadan South West, Oluyole and Ona Ara Local Government Areas, with attention to public and private schools and to urban, semi-urban and rural contexts. The children targeted were within the pre-primary age range of approximately three to five years.

A total of 140 teachers and 389 learners participated in the study. Data were obtained from teachers through a structured Teachers' Characteristics Questionnaire (TCQ), while learners' numeracy and literacy development were assessed using the Numeracy and Literacy Development Test (NLAT). The study employed frequency counts, percentages, means and standard deviations to describe the data. Pearson Product Moment Correlation, Multiple Regression Analysis and Independent Samples t-test were used to test the hypotheses at the 0.05 level of significance.



The thesis reports a pilot study involving 20 pre-primary teachers outside the main sample. However, the reliability coefficient recorded in the thesis as 0.081 is inconsistent with the accompanying statement that it exceeded the conventional 0.70 benchmark. This value should be verified against the original statistical output before journal submission and is therefore not interpreted here as evidence of acceptable reliability.

Result Presentation

The findings showed generally favourable teacher characteristics and relatively high levels of learners' numeracy and literacy development. More importantly, the inferential analyses indicated that several teacher-related variables were significantly associated with learners' outcomes.

Hypothesis One: There will be no significant influence of teachers' academic qualifications on pre-primary school children's literacy and numeracy development.

Table 1: Regression Analysis of Teachers' Academic Qualifications on Learners' Numeracy and Literacy Development

Variable	B	Std. Error	Beta (β)	t-value	Sig.
Constant	18.421	2.014	-	9.146	.000
Teachers' Academic Qualification	0.684	0.173	0.362	3.954	.000

R = 0.362; R² = 0.131; Adjusted R² = 0.125; F (1,138) = 15.63; p < 0.05

Threshold: p < 0.05 = Significant; p ≥ 0.05 = Not significant.

Decision: Reject Ho₁.

Hypothesis Two: There will be no significant influence of teaching methodology on pre-primary school children's numeracy and literacy development.

Table 2: Relationship between Teaching Methodology and Learners' Numeracy and Literacy Development

Variables	N	Mean	SD	r-value	Sig.(2-tailed)
Teaching Methodology	140	3.51	0.65	0.421	.000
Learners' Numeracy and Literacy Development	389	9.79	2.04		

Threshold: p < 0.05 = Significant; p ≥ 0.05 = Not significant.

Decision: Reject Ho₂.

Hypothesis Three: There will be no significant influence of teachers' professional skills on pre-primary school children's numeracy and literacy development.



Table 3: Relationship between Teachers' Professional Skills and Learners' Numeracy and Literacy Development

Variables	N	Mean	SD	r-value	Sig. (2-tailed)
Teachers' Professional Skills	140	3.50	0.67	0.456	.000
Learners' Numeracy and Literacy Development	389	9.79	2.04		

Threshold: $p < 0.05$ = Significant; $p \geq 0.05$ = Not significant.

Decision: Reject H_{03} .

Hypothesis Four: There will be no significant relationship between teachers' classroom management skills and the development of pre-primary school children's numeracy and literacy development.

Table 4: Relationship between Teachers' Classroom Management Skills and Learners' Numeracy and Literacy Development

Variables	N	Mean	SD	r-value	Sig. (2-tailed)
Classroom Management Skills	140	3.55	0.64	0.498	.000
Learners' Numeracy and Literacy Development	389	9.79	2.04		

Threshold: $p < 0.05$ = Significant; $p \geq 0.05$ = Not significant.

Decision: Reject H_{04} .

Hypothesis Five: There will be no significant class size difference on pre-primary school children's numeracy and literacy development.

Table 5: Independent Samples t-test of Class Size Difference on Learners' Numeracy and Literacy Development

Class Size Group	N	Mean	SD	t-value	Sig. (2-tailed)
Small Class Size	72	10.24	1.86	2.741	.007
Large Class Size	68	9.31	2.14		

Threshold: $p < 0.05$ = Significant; $p \geq 0.05$ = Not significant.

Decision: Reject H_{05} .

Academic qualification significantly predicted children's numeracy and literacy development ($\beta = 0.362$, $p < 0.05$). This suggests that teachers' formal preparation and qualifications were relevant to the quality of learning outcomes recorded among the children.



Teaching methodology had a significant positive relationship with children's numeracy and literacy development ($r = 0.421$, $p < 0.05$). The thesis particularly associates child-centred, play-based and activity-oriented approaches with better acquisition of foundational learning skills.

Professional skills were also positively and significantly related to learners' outcomes ($r = 0.456$, $p < 0.05$). Teachers' abilities in communication, lesson preparation, assessment, organisation of learning activities and professional development were identified as important elements of effective teaching.

Classroom management showed a significant positive relationship with numeracy and literacy development ($r = 0.498$, $p < 0.05$). Effective organisation, clear routines, discipline and supportive classroom conditions were associated with better learning opportunities for children.

Class size also produced a significant difference in learners' learning outcomes ($t = 2.741$, $p < 0.05$). The findings suggest that smaller and more manageable classes provide teachers with greater opportunities to interact with children, monitor progress and provide individual support. The thesis further reports that the teacher characteristics jointly made significant contributions to learners' outcomes, with teaching methods making the highest contribution among the predictor variables.

Discussion

The findings present a consistent picture: what teachers know, how they teach, how they manage their classrooms and the resources available to them all matter in the early years. The significant effect of academic qualification is particularly important because pre-primary teaching requires more than general teaching ability. Young children have distinctive developmental and learning needs, and teachers require appropriate preparation to respond to those needs effectively.

The positive relationship between teaching methodology and learning outcomes also highlights the importance of moving beyond passive instruction. Young children are more likely to engage with literacy and numeracy when learning involves play, conversation, practical activities, songs, stories, manipulation of objects and guided exploration. This interpretation fits the theoretical position of Piaget that children construct knowledge through active engagement and Vygotsky's emphasis on guided social interaction.

The result for professional skills reinforces the idea that teacher quality is multidimensional. A teacher may possess an academic qualification but still need practical skills in planning, assessment, communication, classroom organisation and responding to individual differences. Continuous professional development can therefore complement initial teacher preparation. The significant relationship between classroom management and children's outcomes is understandable in the pre-primary context. Young children require structure, predictable routines



and supportive guidance. When a teacher can organise transitions, reduce unnecessary disruptions and maintain a positive classroom climate, more time and attention can be devoted to actual learning.

Finally, the significant class-size finding draws attention to the conditions under which teacher quality is exercised. Even a well-prepared teacher may struggle to provide individual attention in an overcrowded classroom. Manageable class sizes can make teacher–learner interaction more meaningful and allow teachers to identify children who require additional support.

Conclusion

The study concludes that teacher characteristics are important determinants of pre-primary children’s numeracy and literacy development in Ibadan Metropolis. Academic qualifications, teaching methodology, professional skills and classroom management were all positively associated with children’s learning outcomes, while class size produced a significant difference. The evidence therefore suggests that improving early childhood education requires attention not only to curriculum content but also to the people who deliver the curriculum and the classroom conditions in which they work.

The central message is straightforward: children’s foundational skills are strengthened when they are taught by appropriately prepared teachers who use developmentally suitable methods, build supportive relationships, manage classrooms effectively and have access to useful instructional resources.

Implications and Recommendations

Government and school proprietors should give priority to employing professionally qualified teachers in pre-primary classrooms. Teachers should also be supported to upgrade their qualifications through further education, study opportunities and other forms of professional support.

Continuous professional development should be organised regularly. Workshops, seminars and in-service programmes should address child development, play-based pedagogy, literacy and numeracy instruction, assessment, classroom management and appropriate use of instructional materials.

Teachers should make consistent use of child-centred, play-based, activity-oriented and inquiry-based approaches. Such approaches should be adapted to children’s developmental levels and should encourage participation, curiosity, communication and exploration.

Schools and relevant authorities should provide adequate instructional materials and encourage teachers to improvise appropriate materials where necessary. Attention should also be given to



maintaining manageable class sizes so that teachers can provide sufficient individual attention and monitor children's progress.

Educational authorities should strengthen monitoring and supervision of pre-primary schools to promote compliance with professional standards and developmentally appropriate teaching practices.

Contribution to Knowledge

The study contributes to early childhood education research by examining several teacher characteristics together rather than considering teacher quality as a single factor. It provides empirical evidence from Ibadan Metropolis on the relationship between teacher-related characteristics, classroom conditions and children's foundational numeracy and literacy development. The findings also draw attention to the interaction between teacher quality and the practical conditions of teaching, particularly instructional resources and class size.

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