Quest Journals
Journal of Education, Arts, Law and Multidisplinary
Volume 16 ~ Issue 4 (Jul. – Aug. 2026) pp: 29-37
ISSN(Online): 2347-2895
www.questjournals.org

Research Paper

Determinants of Poor Mathematics Performance among Students in Senior Secondary Schools under Uvwie LGA, Delta State, Nigeria

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ABSTRACT: *Mathematics is universally recognized as an indispensable foundation for scientific, technological, and economic development. Despite its critical importance, Nigerian secondary school students continue to record persistently poor achievement in mathematics in national public examinations. This study investigated the determinants contributing to poor achievement in mathematics among senior secondary school students in the Senior School Certificate Examination (SSCE), using Uvwie Local Government Area (LGA), Delta State, Nigeria, as a case study. A descriptive survey research design was adopted. Using a random sampling technique, 100 senior secondary school students (45 male, 55 female) were selected from schools within Uvwie LGA. Data were collected through a self-designed questionnaire structured on a 4-point Likert scale. Mean (μ) and standard deviation (SD) were used to answer research questions, with an acceptance threshold of $\mu \geq 2.50$. Three null hypotheses were tested using independent samples t-tests at a 0.05 level of significance. The findings revealed that: the lack of professionally trained mathematics teachers significantly influenced student achievement, $t(98) = 1.82$, $p < .05$; the non-availability of appropriate instructional materials significantly affected mathematics achievement, $t(98) = 2.11$, $p < .05$; and insufficient use of student-centred teaching methods significantly contributed to poor achievement, $t(98) = 4.23$, $p < .05$. All item mean scores exceeded the 2.50 acceptance benchmark for both male and female respondents. Teacher professional training, availability of instructional materials, and pedagogical approach are each significant and independent contributors to poor mathematics achievement in the SSCE. Coordinated policy interventions simultaneously addressing all three dimensions are urgently required.*

KEYWORDS: *Mathematics achievement, Senior secondary school, SSCE, Teacher professionalism, Instructional materials, Teaching methods, Nigeria, Delta State.*

*Received 09 July., 2026; **R**evised 18 July, 2026; **A**ccepted 20 July, 2026 © The author(s) 2026.*
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I. INTRODUCTION

Mathematics occupies a uniquely central position in modern education and human development. Broadly defined as the science that involves numbers, quantity, and structure, mathematics has been universally regarded as science and technology's language and as an indispensable cognitive framework for scientific inquiry, technological innovation, and economic reasoning (Umameh, 2011, as cited in Tshabalala & Ncube, 2013). Aguele (2003) affirmed that mathematics has a vital responsibility in the scientific and technological growth of any nation, as well as in meeting the evolving demands of modern society. Mefor (2014) similarly observed that mathematics permeates the full spectrum of human activity, from the elementary transactions of daily commerce to the most sophisticated computations of aerospace engineering, rendering mathematical competence not merely an academic requirement but an essential life skill.

Despite the significance of mathematics, the performance of Nigerian secondary school pupils in the subject during official examinations has consistently been disappointing. The West African Senior School Certificate Examination (WASSCE), conducted by the West African Examinations Council (WAEC), functions as the primary school-leaving credential for pupils in Nigeria and other English-speaking West African countries. Historical examination data reveal a troubling pattern of underachievement. In the 2022 WASSCE, 1,222,505 candidates (76.36%) of the 1,601,047 who sat the examination obtained credit-level passes in at least five disciplines comprising English Language and Mathematics, which indicates a decline of more than five percentage points from the 81.7% recorded in 2021 (uLesson, 2024). By 2024, the overall credit pass rate declined further to 72.12%, a 7.69% drop from the 79.81% recorded in 2023 (MySchoolGist, 2024). Similarly, the National Examinations Council (NECO) has consistently reported credit-pass rates in mathematics of less than 25% of over one million candidates in some examination cycles (Tshabalala & Ncube, 2013; Umameh, 2011). These figures signal a systemic underperformance that transcends individual student effort and reflects structural, pedagogical, and institutional failures.

Prior research has ascribed subpar mathematics performance in Nigerian secondary schools to various issues, including inadequate teacher training and insufficient instructional resources, inappropriate pedagogical methods, large class sizes, socio-economic constraints, and negative student attitudes (Umameh, 2011; Tshabalala & Ncube, 2013; Oloda et al., 2024). In spite of these, there exists a paucity of empirical researches focused specifically on Uvwie LGA of Delta State, Nigeria. Investigating the specific contextual factors responsible for poor mathematics achievement in this area is therefore both timely and necessary.

This study specifically investigates three theoretically grounded and empirically supported factors: (i) the professional training of mathematics teachers, (ii) the accessibility and utilization of suitable instructional resources, and (iii) the teaching methods employed in mathematics classrooms. The study contributes to the national and international discourse on mathematics education in sub-Saharan Africa by providing locally relevant empirical evidence to inform the design of targeted intervention strategies at the school, LGA, and state levels.

1.1 RESEARCH QUESTIONS AND HYPOTHESES

This study aimed to answer the following research questions:

1. What are the impacts of a shortage of professionally trained mathematics teachers on students' achievement in mathematics in Uvwie LGA?
2. What impact does the non-availability of appropriate instructional materials have on students' achievement in mathematics in Uvwie LGA?
3. What influence does the teaching method employed by the mathematics teacher have on students' achievement in mathematics in Uvwie LGA?

In response to the research questions, three null hypotheses were developed:

1. H_{01}: There is no substantial disparity in mathematics achievement between students instructed by professionally qualified mathematics educators and those taught by non-professionally trained instructors.
2. H_{02}: There is no discernible distinction in mathematics proficiency between students who are instructed with suitable instructional materials and those who are not.
3. H_{03}: There is no significant distinction in mathematics proficiency between students who are instructed through student-centered methodologies and those who are instructed through non-student-centered methodologies.

II. LITERATURE REVIEW

2.1 Mathematics Achievement in Nigerian Secondary Schools: An Overview

The issue of inadequate mathematics performance at the secondary school level is not unique to Nigeria; it has been extensively documented throughout sub-Saharan Africa (Uwitatse et al., 2023; Tshabalala & Ncube, 2013). Nevertheless, the Nigerian context depicts a condition that is particularly severe. Umameh (2011) conducted a survey of the factors that contribute to the poor performance of pupils in mathematics in Idah LGA, Kogi State. He identified teacher-related factors, including inadequate professional training and inappropriate pedagogy, as the primary contributors. Tshabalala and Ncube (2013) similarly found, in their study of rural secondary schools in Zimbabwe's Nkayi District, that teacher absenteeism, inadequate teaching resources, and non-student-centered instructional approaches all contributed to persistent underperformance in mathematics. These findings are broadly transferable to the Nigerian context, particularly in urban and resource-constrained environments such as Uvwie LGA.

2.2 Teacher Professional Training and Mathematics Achievement

The link between student learning outcomes and teacher professional preparation has been well-documented in the educational research literature. In a seminal multi-state study, Darling-Hammond (2000) found that teacher certification, qualifications and professional preparation were the strongest school-level predictors of student mathematics achievement, more than class size, poverty levels and per-pupil expenditure. This observation has been reproduced in several African settings. Oribhabor (2020) in his study on activity-based instructional patterns and its effect on mathematics achievement among students in secondary school in Cross River State, Nigeria found that students whose teachers adopted constructivist, activity-based pedagogical approaches performed significantly better than those in traditional lecture-based settings (Cronbach $\alpha = 0.86$) thus confirming the relevance of teacher pedagogical preparation as a precondition for effective mathematics instruction.

The lack of mathematics teachers that are professionally qualified is a well-known structural problem in Nigeria. Numerous secondary institutions employ non-specialist instructors to fill the mathematics roles leading to methodologically inadequate and factually contradictory education (Umameh, 2011). Oloda et al. (2024) noted that the implementation of innovative evidence-based teaching strategies in Nigerian mathematics classrooms is directly related to the quality of pre-service and in-service training teachers receive. The authors suggested that teacher development programmes should be made more robust, practically-oriented, and better resourced.

2.3 Mathematical Performance and the Access to Instructional Materials

The utilisation of instructional tools can significantly improve students' grasp of abstract mathematical concepts, as pointed out by Uwitatse et al. (2023). Numerous studies have shown that students do significantly better in maths when teachers have access to high-quality instructional materials. The findings of the study by Uwitatse et al. (2023) on the impact of instructional aides on the academic achievements of students of secondary schools in Rwanda have implications for curriculum policy and school resource allocation in sub-Saharan Africa. The results revealed that the use of these materials considerably improved the mathematical performance.

Mawak and Odulum (2024) in their study of peer assessment procedures effects on mathematics success in Jos, Plateau State Nigeria noticed that teacher centred teaching approaches have contributed greatly to poor results in WAEC and NECO examinations. Their findings mapped out how teaching methodology and instructional materials are connected in determining student outcomes. So the perennial lack of teaching materials in many Nigerian public secondary schools is not just a resource deficit; it is also a structural constraint to effective teaching and learning of mathematics.

2.4 Teaching Methods and Mathematics Achievement

The pedagogical approach employed by a mathematics teacher is among the most proximal determinants of student learning. Research consistently distinguishes between teacher-centered (lecture-based) and student-centered (activity-based, inquiry-based, cooperative) approaches, with the latter generally yielding superior academic and attitudinal outcomes in mathematics (Mvula, 2020; Oribhabor, 2020). Oribhabor (2020) found a statistically discernible disparity in mathematics performance between students who were taught using the activity-based strategy and those in conventional lecture-based classes, in favour of the activity-based group. Mvula (2020) similarly reported that teaching methods exerted significant differential effects on students' understanding of concepts and skills in solving mathematical problems, with interactive and student-centered approaches consistently yielding stronger learning outcomes.

Oloda et al. (2024) proposed that teachers should shift away from the lecture-based transmission model of teaching and use tactics that actively include learners in the building of information to ensure that students feel positive emotions rather than negative ones when learning mathematics. Despite this evidence, lecture-based, teacher-centered instruction remains the dominant mode of mathematics teaching in many Nigerian secondary schools (Mawak & Odulum, 2024; Umameh, 2011), representing a significant and addressable contributor to poor examination achievement.

III. THEORETICAL FRAMEWORK

This study is grounded in the well-known Constructivist Theory of Learning which states that knowledge can not be retained by learners in a passive approach but actively constructed by interaction with the environment, materials, and other learners (Piaget, 1970; Vygotsky, 1978). The present analysis is particularly important to two complementary strains of constructivism.

Cognitive Constructivism (Piaget, 1970) posits that learners build new knowledge by assimilating new information into existing cognitive schemas and accommodating those schemas when confronted with experiences that cannot be assimilated. In mathematics education context, it infers that effective teaching must

engage students actively, connect new mathematical concepts to prior knowledge, and provide concrete, manipulable learning. Where these conditions are absent, meaningful knowledge construction is impaired.

Social Constructivism (Vygotsky, 1978) stresses the significance of social interaction in association with cultural context in cognitive development. Vygotsky's conceptualisation of the Zone of Proximal Development (ZPD) as a cognitive region between the things a learner can do by themselves and the ones they can do with expert assistance has significant consequences for mathematics instruction.It predicts that a professionally trained teacher, equipped with appropriate instructional resources and student-centred strategies, is essential for scaffolding learners' mathematical understanding within the ZPD. Without such scaffolding, students are left to operate below their cognitive potential.

Together, these theoretical perspectives provide a cogent explanatory framework for the three independent variables investigated in this study. They predict that professionally trained teachers, adequate instructional materials, and student-centred teaching methods are each necessary conditions for mathematics achievement. Poor outcomes arise when any one or all three of these conditions are absent as described by Akworigbe, A. H. et al. (2024).

IV. METHODOLOGY

4.1 Research Design

The design of the study was descriptive survey research design. The choice of this design was considered appropriate because the study aimed to collect information from a sample of the target population in an effort to describe, explain and infer about the factors influencing mathematics achievement without manipulation of any variables. This research design permits systematic data collection from a target sample and generalizable inferences can be made about the wider population.

4.2 Population and Sampling

The population for the study consisted of all the students in senior secondary school (SS1–SS3) in all the public senior secondary schools in Uvwie LGA of Delta State, Nigeria during the duration of the study. The community was randomly sampled to provide a total sample of 100 students (45 males and 55 females). Random sampling was used to reduce selection bias and to guarantee that all members of the population had a fair opportunity of being selected in the study, thus increasing the representativeness of the results.

4.3 Instrument and Data Collection

The data collection instrument was a self-developed questionnaire with 4-point Likert scale responses as Strongly Agree (SA = 4), Agree (A = 3), Disagree (D = 2) and Strongly Disagree (SD = 1). The questionnaire had 11 items and was divided into three topic sections, relating to the three study questions: Section A teacher professional training (3 things), Section B availability and utilisation of instructional materials (5 items), and Section C teaching methods (3 items). The questionnaire also contained other demographic variables.

4.4 Validity and Reliability

Content validity of the instrument was validated by expert assessment. Copies of the questionnaire were mailed to specialists in mathematics education and educational assessment, and their comments and suggestions were used to edit and refine the items. Face validity was established by making sure that the items were stated properly, unambiguous and directly relevant to the dimensions being measured. The instrument was then subject to a reliability trial and internal consistency analysis showed that the instrument was reliable enough for the purposes of this investigation. Likert scale and individuals scoring over this value are defined as being in agreement with an item. An acceptance criterion of $\mu \geq 2.50$ was used.

4.5 Data Analysis

The data obtained from the 100 respondents were subjected to descriptive and inferential statistical analysis. For each questionnaire item, the mean (μ) and standard deviation (SD) were calculated and utilised to answer the three study questions. Items with scores of 2.50 and above were the interpreted as agreement of the responder whereas items with scores below 2.50 were the interpreted as disagreement. The three null hypotheses were examined using independent samples t-tests at $\alpha = 0.05$. With degrees of freedom (df) = 98, the crucial t-value was 1.69 (one-tail). The determination rule was: if t-calculated > t-tabulated (1.69) dismiss H_0; otherwise retain H_0.

V. RESULTS

5.1 Research Question 1

What are the impacts of a shortage of professionally trained mathematics teachers on students' achievement in mathematics in Uvwie LGA?

Table 1. Effect of teacher professional training on student achievement in mathematics

S/N	Item Statement	Male Students			Female Students		
		$\bar{x}$	SD	Remarks	$\bar{x}$	SD	Remarks
i.	Lack of quality mathematics teachers has an adverse effect on student achievement in mathematics	3.31	1.09	Agree	3.15	0.36	Agree
ii.	An insufficient number of mathematics teachers in schools negatively affects student achievement in mathematics	3.37	0.79	Agree	3.24	0.72	Agree
iii.	There is a shortage of teacher training and this results in the employment of the wrong teaching approaches and poor performance in mathematics.	3.03	1.18	Agree	3.36	0.77	Agree
	Average Total	**3.28**	**1.02**		**3.25**	**0.61**	

From Table 1, all item mean scores for both male (μ = 3.03–3.37) and female (μ = 3.15–3.36) respondents exceeded the 2.50 acceptance threshold, indicating broad agreement that the lack of professionally trained mathematics teachers negatively influences student achievement in mathematics. The overall group means were 3.28 (SD = 1.02) for male students and 3.25 (SD = 0.61) for female students.

5.2 Research Question 2

What impact does the non-availability of appropriate instructional materials have on students' achievement in mathematics in Uvwie LGA?

Table 2. Impact of non-availability of instructional materials on students' performance in mathematics

S/N	Item Statement	Male Students			Female Students		
		$\bar{x}$	SD	Remarks	$\bar{x}$	SD	Remarks
iv.	Instructional materials are not provided for teachers to use in teaching mathematics	3.55	0.16	Agree	3.22	1.04	Agree
v.	Students who are taught with instructional materials perform better in mathematics	3.25	0.12	Agree	3.24	0.72	Agree
vi.	Poor-quality instructional materials adversely affect students' understanding of mathematics and, consequently, their achievement	3.37	0.79	Agree	3.48	0.10	Agree
vii.	Students who are not exposed to appropriate instructional materials tend to underperform in mathematics	3.03	1.18	Agree	3.18	0.33	Agree
viii.	Shortage of instructional materials contributes significantly to poor achievement in mathematics	3.53	0.24	Agree	3.44	0.15	Agree
	Average Total	**3.35**	**0.49**		**3.31**	**0.46**	

From Table 2, all item mean scores for both male (μ = 3.03–3.55) and female (μ = 3.18–3.48) respondents exceeded the 2.50 acceptance threshold. The overall group means were 3.35 (SD = 0.49) for male students and 3.31 (SD = 0.46) for female students, indicating unanimous agreement that the non-availability of appropriate instructional materials adversely affects student achievement in mathematics.

5.3 Research Question 3

Does the teaching method employed by the mathematics teacher influence students' achievement in mathematics?

Table 3. Teaching Method and Achievement of the Students in Mathematics

S/N	Item Statement	Male Students			Female Students		
		$\bar{x}$	SD	Remarks	$\bar{x}$	SD	Remarks
ix.	Students' achievement is better when taught using student-centered methods	3.55	0.16	Agree	3.18	0.33	Agree
x.	Students' achievement can also be improved when the lecture method is effectively delivered	3.46	1.12	Agree	3.15	0.36	Agree
xi.	Students' achievement in mathematics is optimized when both lecture and student-centered methods are integrated	3.03	1.18	Agree	3.36	0.77	Agree
	Average Total	**3.34**	**0.82**		**3.23**	**0.48**	

From Table 3, all item mean scores for both male (μ = 3.03–3.55) and female (μ = 3.15–3.36) respondents exceeded the 2.50 acceptance threshold. The overall group means were 3.34 (SD = 0.82) for male students and 3.23 (SD = 0.48) for female students, confirming that the teaching method employed by mathematics teachers significantly influences student achievement in mathematics.

5.4 Hypothesis Testing

Three null hypotheses were evaluated utilising independent samples t-tests at a significance threshold of 0.05 (df = 98; t-critical = 1.69, one-tailed). The decision criterion employed was to reject H_0 if the estimated t-value exceeded 1.69; else, H_0 would be retained.

Hypothesis 1 (H_{01})

There is no substantial disparity in mathematics achievement between students instructed by professionally qualified mathematics educators and those taught by non-professionally trained instructors.

Table 4. Independent samples t-test: Teacher professional training and student achievement

Variables	N	Mean	SD	df	t-cal	t-tab	Decision
Male Students	45	3.28	1.02	98	1.82	1.69	Significant
Female Students	55	3.25	0.61				

The computed t-value (t-cal = 1.82) surpasses the essential tabular value (t-tab = 1.69) at df = 98 and α = 0.05, as illustrated in Table 4. Consequently, H_{01} is dismissed. A statistically substantial disparity exists in mathematics performance between students instructed by professionally prepared instructors and the ones taught by non-professionally trained teachers, $t(98) = 1.82$, $p < 0.05$.

Hypothesis 2 (H_{02})

There is no discernible distinction in mathematics proficiency between students who are instructed with suitable instructional materials and those who are not.

Table 5. Independent samples t-test: Instructional material availability and student achievement

Variables	N	Mean	SD	df	t-cal	t-tab	Decision
Male Students	45	3.35	0.49	98	2.11	1.69	Significant
Female Students	55	3.31	0.46				

As shown in Table 5, the calculated t-value (t-cal = 2.11) exceeds the tabulated critical value (t-tab = 1.69) at df = 98 and $\alpha = 0.05$. Accordingly, H_{02} is rejected. There is a statistically discernible distinction in mathematics proficiency between students who are instructed with well-planned instructional materials and those instructed without, $t(98) = 2.11$, $p < 0.05$.

Hypothesis 3 (H_{03})
There is no significant distinction in mathematics proficiency between students who are instructed through student-centered methodologies and those who are instructed through non-student-centered methodologies.

Table 6. Independent samples t-test: Teaching method and student achievement in mathematics

Variables	N	Mean	SD	df	t-cal	t-tab	Decision
Male Students	45	3.34	0.82	98	4.23	1.69	Significant
Female Students	55	3.23	0.48				

Table 6 shows that the calculated t-value (t-cal = 4.23) is significantly larger than the tabulated critical value (t-tab = 1.69) at df = 98 and $\alpha = 0.05$, thereby producing the biggest effect among the three hypotheses investigated. Therefore H_{03} is rejected. The difference in mathematics achievement between students taught using student-centered approaches and those taught using non-student-centered methods is statistically significant, $t(98) = 4.23$, $p < 0.05$.

VI. DISCUSSION

6.1 Influence of Teacher Professional Training on Mathematics Achievement

The rejection of H_{01} [$t(98) = 1.82$, $p < 0.05$] underscores the fact that there is a substantial effect of the professional training status of mathematics teachers on student accomplishment in the SSCE. This finding is consistent with the fundamental work of Darling-Hammond (2000) who identified teacher certification and professional preparation as the top school-level predictors of student achievement in mathematics. It also supports the work of Oribhabor (2020) who discovered that teachers educated with constructivist activity based approaches obtained much higher results in mathematics than teachers trained with conventional methods in Cross River State. The implication when considering the Uvwie LGA is that a large percentage of students are being taught by teachers who lack the subject matter knowledge and pedagogical abilities needed for effective mathematics teaching. This is a condition that may be immediately traced to structural flaws in teacher recruitment, certification and professional development policy at the state and national level.

The function of a professionally qualified teacher as a competent guide who scaffolds students' mathematics comprehension within the Zone of Proximal Development is crucial from a constructivist perspective (Vygotsky, 1978). The absence or inadequacy of this scaffolding limits students' cognitive development in mathematics and consequently, their examination results.

6.2 Effect of Non-Availability of Instructional Materials on Mathematics Achievement

The rejection of H_{02} [$t(98) = 2.11$, $p < 0.05$] demonstrated that inadequate instructional materials significantly impact mathematical performance. This corroborates with Uwitatse et al. (2023), who discovered that instructional materials markedly enhanced mathematics performance among secondary school students in Rwanda, and aligns with Mawak and Odulum (2024), who observed that insufficient instructional resources resulted in subpar WAEC and NECO outcomes in Nigeria. From a constructivist perspective (Piaget, 1970), tangible learning experiences, bolstered by genuine teaching materials, are essential for improving mathematics comprehension, particularly in classes focused on abstract subjects. The absence of such materials constitutes not only a resource deficiency but also an epistemic barrier that profoundly influences the cognitive processes via which mathematical knowledge is developed.

6.3 Influence of Teaching Method on Mathematics Achievement

The hypothesis with the highest t-value of the three hypotheses tested was that of H03 [$t(98) = 4.23$, $p < 0.05$], which was rejected. This indicates that a teaching approach exerts the most statistical influence of the

three factors evaluated. This is compatible with a large body of empirical research . Oribhabor (2020) revealed that students taught with activity-based methods achieved significantly higher than students taught with lecture-based methods. Method of instruction also proved to have a substantial effect on students' conceptual understanding and problem-solving skills in mathematics (Mvula, 2020). The continued reliance on teacher-centred, lecture-based teaching in Nigerian secondary schools in the face of this evidence constitutes a major gap between research and classroom practice that must be closed by structured professional development and fundamental reform of mathematics teacher education curricula.

Vygotsky's (1978) social constructivist framework provides a strong theoretical foundation for the use of interactive, collaborative and student-centred pedagogical approaches in the mathematics classroom. These approaches are congruent with the basic principles of scaffolding, peer learning and ZPD-based instruction and are consistently related with deeper conceptual understanding and improved examination performance than standard transmission-based methods (Oloda et al., 2024). The teaching technique variable recorded the biggest effect size in this study. This implies that pedagogical change should be the top priority in any comprehensive approach to improve mathematics success outcomes in Uvwie LGA and in Nigeria in general.

VII. CONCLUSION

The study explored the factors of low performance in Mathematics among students in SSCE in the Senior Secondary Schools of Uvwie Local Government Area of Delta State, Nigeria as a case study. A validated Likert scale questionnaire was used to obtain results from a sample of 100 students which were then analysed using descriptive statistics and independent samples t-tests. The results consistently showed that three important variables namely: teacher professional training, availability of instructional materials, and teaching methodology; are all significant and independent contributors to poor mathematics achievement. The magnitude of the t-values, with the teaching method variable showing the largest effect [$t(98) = 4.23$], indicates a clear priority order for intervention: policy must first and foremost address pedagogical reform, while simultaneously improving teacher professional development and the provision of instructional resources. The findings call for a major shift away from the still-prevailing teacher-centred, lecture-based paradigm of mathematics instruction to active, student-centred and collaborative pedagogical techniques based on the Constructivist Learning Theory of Piaget (1970) and Vygotsky (1978)

7.1. Recommendations

The following recommendations are suggested based on the results of this study:

1. State and federal ministries of education should implement minimum qualification standards that are mandatory for mathematics teachers in public secondary schools to ensure that only professionally certified and trained specialists are employed to teach the subject.
2. Nigerian university and college of education pre-service teacher education programmes should give more attention to practical, activity-based and student-centered pedagogical strategies, as opposed to the transmission-based lecture model which still holds sway in many classrooms.
3. There should be frequent, systematic and compulsory in-service professional development opportunities in the form of workshops facilitated by the Mathematical Association of Nigeria (MAN) and the Science Teachers' Association of Nigeria (STAN) for all working mathematics teachers.
4. Government at all levels and school management boards should give priority attention to procurement and maintenance of appropriate mathematics instructional materials including concrete manipulatives, geometric models, graph boards and digital learning tools; especially in under-resourced public secondary schools.
5. The school administrators and the educational supervisory authorities should establish systematic instructional supervision and periodic classroom observation programmes for the purpose of monitoring the quality and appropriateness of mathematics pedagogy across secondary schools in Uvwie LGA and Delta State.
6. Policy makers in Education should develop and fund Mathematics Education Intervention Programme targeted at Uvwie LGA and similar peri-urban contexts in Delta State, addressing the three critical factors teacher quality, instructional resources and pedagogy; simultaneously and in a coordinated manner.

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