



## TEACHER TRAINING, CLASSROOM SIZE AND ACADEMIC

### PERFORMANCE OF JUNIOR SECONDARY SCHOOL PUPILS IN MATHEMATICS IN AFIJIO LOCAL GOVERNMENT AREA, OYO STATE

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### Abstract

This research examines the effects of teacher training and classroom size on the academic performance of junior secondary school students in Mathematics in Afijio Local Government Area, Oyo State. Employing a descriptive survey methodology, data were gathered from 744 students across four selected schools. The study utilized linear and multiple

regression analyses to evaluate the hypotheses concerning the influence of teacher training and classroom size. The results demonstrated a

significant positive effect of teacher training on academic performance ( $F=654.074$ ,  $p<0.05$ ), emphasizing the critical role of professional development in enhancing teaching effectiveness.

Additionally, classroom size was found to significantly impact student outcomes ( $F=604.483$ ,  $p<0.05$ ), with smaller class sizes being associated with improved academic performance. Together, teacher training and classroom size accounted for 49% of the

### Keywords:

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variance in academic performance ( $F=375.645$ ,  $R^2=0.494$ ,  $p<0.05$ ). These findings underscore the importance of implementing targeted teacher training initiatives and maintaining manageable classroom sizes to create a conducive learning environment. The study recommends ongoing professional development for teachers and investments in educational infrastructure to facilitate smaller class sizes and enhance student achievement.

## **Introduction**

**T**he academic achievement of secondary school pupils is a crucial predictor of their potential for future success. Academic success at this period establishes the groundwork for future educational and employment prospects, impacting students' self-esteem, motivation, and general well-being. Robust academic performance can facilitate access to further education, enhanced employment possibilities, and augmented earning potential, whereas inadequate performance may result in diminished opportunities and an elevated likelihood of school dropout.

The recognised issue of inadequate academic performance among secondary school pupils has been a significant worry for policymakers and stakeholders in the education system. This issue has been associated with several aspects, including teacher quality, parental participation, learning environment, and individual student characteristics, all of which significantly influence secondary school students' academic achievement. As children progress through this critical phase of their education, it is imperative to recognise and tackle the elements that influence their academic achievement. By comprehending the impact of these elements on academic achievement, educators, legislators, and parents may collaborate to establish conducive learning environments that promote academic greatness and prepare kids for enduring success. Dargay and Gyeltshen (2021) argued that the level of academic performance impacts the efficacy and durability of present and future country builders such as the vigorous bureaucrats, professionals, entrepreneurs and so on.

Academic performance of secondary school students denotes the evaluation of a student's accomplishments and advancement in their studies, often assessed by grades, test scores, and various evaluations (Oladunjoye, 2017; Nwosu, 2018). It includes several components, such as: Cognitive achievement: knowledge, comprehension, and application of subject matter (Adeyemi, 2019); Skill development: critical thinking, problem-solving, and communication abilities (Alabi, 2020); Attitudinal outcomes: motivation, interest, and engagement in learning (Ogunsola, 2019). Academic success is impacted by several aspects, including individual student traits, instructor quality, school environment, and family participation (Okoro, 2020; Oloruntoba, 2020). This research aims to investigate the critical impact of teacher training and classroom size on the academic performance of secondary schools in Afijio Local Government, Oyo State.

Training is an action of teaching a person a certain talent to fulfil their jobs properly and efficiently. Teacher training refers to the process of preparing instructors with the required information, skills, and competencies to successfully teach and promote student learning (Adeyemi, 2019; Alabi, 2020). It covers different types of professional development, including: Pre-service training: initial teacher preparation before joining the classroom (Oladunjoye, 2017). In-service training: continual professional development for practical teachers (Ogunsola, 2019); Continuing education: upgrading teachers' knowledge and abilities to reflect evolving trends and technology (Nwosu, 2018) and capacity building: strengthening teachers' pedagogical, subject matter, and leadership abilities (Okoro, 2020). Effective teacher training programs are crucial for enhancing teacher quality, student success, and educational outcomes (Oloruntoba, 2020).

Training is an important aspect of the human resource development. Most employees have certain shortcomings in their organizational abilities (Navarro, Zervas, Gesa, & Sampson, 2016). Like workers in any firm instructors also require training to strengthen their teaching skills (Noah & Olusola, 2015). Training not only increases teacher performance but also the students' learning outcomes. Training framework is created in educational institutions to assist the teachers' skill (Navarro et al., 2016).

Study conducted out by Chen-Chung, Kuan-Hsien, Leon Yufeng, & Chin-Chung, 2016 shows that deficit among teachers' competence leads towards the deficiency among students learning behavior and outcomes. Subsequently, it contributes towards the deficiencies in overall organizational Performance. Diverse requirements of students may be met by giving adequate trainings to personnel in educational institutions globally. Teacher training is a vital aspect in boosting the quality of education in secondary schools. When instructors acquire proper training, they become more successful in their instructional approaches, classroom management, and assessment strategies. This, in turn, has a favourable influence on student academic achievement, as students are more likely to be interested, motivated, and encouraged in their learning. Studies have repeatedly demonstrated that teacher training is a critical factor of student accomplishment, and that pupils taught by well-trained teachers tend to perform better academically. Research conducted out by Wang et al., 2020; Henderson et al., 2022 found that Effective teacher training would enhance student results in science, technology, engineering, and math (STEM) disciplines, leading to greater student engagement and motivation Wang et al., 2020; Henderson et al., 2022.

Furthermore, good teacher training can also contribute to enhanced student results in areas such as critical thinking, problem-solving, and communication skills. Moreover, skilled teachers are better prepared to detect and address individual students' needs, producing a more inclusive and supportive learning environment. By investing in teacher training, schools may empower their teachers to become more confident, competent, and innovative educators, eventually leading to higher academic achievement and long-term success for their students. Studies have found that Nigerian secondary school teachers lack proper in-service training, resulting to weak pedagogical abilities (Oladunjoye, 2017; Akporhonor, 2018).

Ogunsola, 2019 and Alabi, 2020 believe that the absence of regular in-service training for Nigerian secondary school teachers inhibits their capacity to properly apply curricular modifications The absence of in-service training among Nigerian secondary school teachers has been connected to low

student academic achievement (Nwosu, 2018; Okoro, 2020). However, classroom size is another key issue which plays critical roles in determining the quality of education kids receive. Classroom size refers to the number of students assigned to a given classroom or instructor, which can greatly effect the learning environment and student results (Adeyemi, 2019). It is a significant aspect in determining the quality of education, as it impacts the outcome of teaching and learning process. Study carried out by Alabi, (2020) demonstrated that reduced class sizes have a beneficial influence on students' academic achievement, particularly in key areas like mathematics and reading. In smaller courses, teachers can give individualized attention, adjust lessons to match students' different needs, and build a more interesting and participatory learning environment. This, in turn, can lead to improved student outcomes, higher academic accomplishment, and a smaller achievement gap.

In contrast, big class numbers might impair academic achievement, as teachers struggle to manage and support a greater number of pupils. Overcrowded classrooms can lead to lower student involvement, fewer teacher-student connection, and a higher risk of disturbances.

Furthermore, students in bigger courses may feel anonymous, alienated, and less motivated, eventually harming their overall academic performance.- Research has repeatedly demonstrated that reduced class sizes are related with greater student outcomes, including higher academic success and increased graduation rates (Finn et al., 2017; Krueger, 2017).

This study focusses on Teacher Knowledge Theory (Shulman, 1986): and Social Constructivist Theory (Vygotsky, 1978). The Teacher Knowledge Theory underlines the significance of teacher training in building teachers' subject matter knowledge, pedagogical content knowledge, and pedagogical knowledge. Also, Social Constructivist Theory argued that lower classroom sizes allow for more individualized attention, collaborative learning, and social interaction, leading to greater student learning.

Despite the critical role of education in shaping the future of individuals and societies, secondary school students continue to face significant challenges in achieving academic success and it is in this light that the study set out to

discover the impact of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government Oyo, Oyo State.

### **Statement of the Problem**

Even though education plays a crucial role in determining the future of individuals and societies, secondary school students in Afijio Local Government of Oyo State still struggle greatly to succeed academically in mathematics. This is a serious concern because the quality of students' academic performance determines the effectiveness and sustainability of present and future nation builders, such as the resilient bureaucrats, professionals, entrepreneurs, and so on. It is commonly noted that school-age youngsters overcrowd public secondary schools. This is said to be because of the nation's economic difficulties, which have made it impossible for many parents to send their children to private secondary schools. The ultimate goal of public secondary schools is to give all citizens, regardless of socioeconomic background, access to education. This goal is typically not for profit, but the oppressed groups take advantage of this, which has led to an explosion in the number of students in many public secondary schools, which has resulted in larger class sizes that can have a detrimental effect on the learning environment and student outcomes. Classroom teacher training is an essential component of human resource development. As high-stakes testing and the move towards common core standards have increased measurement and accountability for student achievement, high-quality teacher training programs that can result in notable improvements in student achievement are needed. Pre-service training, in-service training, continuing education, and improving teachers' pedagogical, subject-matter, and leadership abilities are all lacking, according to studies, and this deficiency among instructors causes a deficiency in the learning behaviour and results of students. A serious flaw in the educational system that must be fixed to improve student performance is highlighted by the difficulty of providing high-quality instruction in packed classrooms, which is made worse by perhaps inadequate teacher training. This study looks at how classroom size and teacher preparation affect

secondary school students' academic performance in this area in an effort to pinpoint important elements that either support or undermine student progress.

The two dependent variables—teacher training and classroom size—were examined individually in previous research by Adeyemi (2018) and Okoro (2022), but this study examines the variables together. Additionally, the local government where this study is being conducted exhibits peculiarities, which is why this study is filling that gap.

### **Objective of the study**

The main objective of this study is to investigate the impact of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government Oyo State. The specific objectives are to:

1. determine the main effect of Teacher Training on academic performance of secondary school students in Afijio Local Government of Oyo State;
2. ascertain the main effect of classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State and
3. investigate the combine effect of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State

### **Hypotheses**

H<sub>0</sub>1: There will be no significant effect of Teacher Training on academic performance of secondary school students in Afijio Local Government, Oyo State.

H<sub>0</sub>2: There will be no significant effect of classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State.

H<sub>0</sub>3: There will be no significant combine effect of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State.

### **Methodology**

For this study, the researchers used a descriptive survey approach. Every junior-class student in every school in Oyo State's Afijio Local Government Area made up the study's population. Seven hundred and seventy-four (744) junior secondary school students in the Afijio Local Government Area were selected as the sample. The study's participants were chosen using a multi-stage sampling process. In the first step, four junior secondary schools in Oyo State's Afijio Local Government Area were chosen using a straightforward random selection approach to ensure they met the study's requirements. A total of 744 respondents were recruited from among 180 students from Akinmoorin Secondary School, 200 students from Fiditi Grammar School, 200 students from Jobele Community High School, and 194 students who were picked at random from Ilora Community Secondary School. The four sub-scales of the academic performance, teacher training, and classroom size (QAPTTCS) study instrument were used. The researchers created the instrument, a self-structured questionnaire with 30 items that were verified by subject-matter experts. This was carried out in order to get factual and objective data from the participants. The items were scored using a four-point Likert scale: Strongly Agree, Agree, Disagree, and Strongly Disagree. Multiple regression analysis at the 0.05 level of significance and inferential statistics using the Pearson product moment are the statistical methods used to examine the data gathered and assess the hypotheses that were developed.

## Result

**H<sub>0</sub>1: There will be no significant effect of teachers' training on academic performance of secondary school students in Afijio Local Government, Oyo State**

**Table 1: Summary of Linear Regression Analysis Showing the effect of Teacher Training on academic performance of secondary school students in Afijio Local Government, Oyo State**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3587.462	1	3587.462	654.074	.000 <sup>b</sup>
	Residual	4234.259	772	5.485		
	Total	7821.721	773			



a. Dependent Variable: Academic performance

b. Predictors: (Constant), training

From the table above, since significance value  $p < 0.05$ , we reject the null hypothesis and accept the alternative hypothesis that there will be significant effect of teachers' training on academic performance of secondary school students in Afijio Local Government, Oyo State.

**H<sub>02</sub>: There will be no significant effect of classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State.**

**Table 2: Summary of Linear Regression Analysis Showing the effect of classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3434.910	1	3434.910	604.483	.000 <sup>b</sup>
	Residual	4386.810	772	5.682		
	Total	7821.721	773			

a. Dependent Variable: Academic performance

b. Predictors: (Constant), classroom

From the table above, since significance value  $p < 0.05$ , we reject the null hypothesis and accept the alternative hypothesis that there will be significant effect of classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State.

**H<sub>03</sub>: There will be no significant combine effect of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State**

**Table 3: Summary of Multiple Regression Analysis Showing the combine effect of teacher training and classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State**

Sources of Variance	Sum of Square	Df	Mean square	F	Significant
REGRESSION	3860.227	2	1930.113	375.645	0.000 <sup>b</sup>
RESIDUE	3961.494	771	5.138		
TOTAL	7821.721	772			

$R = 0.703^a$

R Square = 0.494

Adjusted R Square = 0.492

Std. Error of the Estimate = 2.267

- a. Dependent Variable: Academic performance
- b. Predictors: (Constant), classroom, training

The table 3 indicated that the combine effect of teachers' training and classroom size on academic performance of secondary school students in Afijio Local Government, Oyo State ( $F_{(2,771)} = 375.645$ ;  $\text{Adj } R^2 = 0.703$ ;  $p < 0.05$ ). This implies that when classroom size and teachers' training were taken together, they jointly predict students' academic performance. The table further revealed that multiple regression coefficient ( $R = 0.703$ ) and multiple regression adjusted ( $R^2 = 0.494$ ). This indicated that 49% of the variation in students' performance was accounted for by the combine contribution of classroom size and teachers' training while the remaining 51% is due to other factors and residuals not in this model.

### **Discussions**

This study's findings shed light on the influence of teacher training and classroom size on the academic performance of junior secondary school pupils in Afijio Local Government Area, Oyo State.

To begin, hypothesis one's findings indicate that teacher preparation has a considerable impact on students' academic achievement. This conclusion is consistent with earlier research (Adeyemi, 2012; Oyedeji, 2015), which has emphasised the role of teacher training in boosting students' academic achievements. The findings imply that instructors who receive frequent training and professional development are better prepared to give high-quality instruction, which improves students' learning results.

Second, the results of Hypothesis tow show that classroom size has a considerable influence on students' academic achievement. This conclusion is consistent with prior study (Adeyinka, 2007; Ogunyemi, 2011), which showed that big classroom sizes had a detrimental influence on students' academic

performance. The findings imply that lower classroom sizes make for a more conducive learning environment, allowing teachers to spend more attention to individual pupils and fostering higher academic achievements.

Third, the findings of hypothesis three indicate that instructors' training and classroom size have a combined influence on students' academic achievement. This research emphasises the necessity of taking into account both teacher-related and environmental factors when working to enhance students' academic achievements. According to the findings, governments and educators should prioritise teacher training as well as classroom size reduction to establish a supportive learning environment that supports academic performance.

### **Conclusion**

In conclusion, the findings of this study underline the crucial significance of teachers' training and classroom size in influencing the academic performance of junior secondary school pupils in Afijio Local Government Area of Oyo State. The study's conclusions have substantial implications for politicians, educators, and other stakeholders attempting to enhance the quality of education in Nigeria.

### **Recommendations**

1. Regular Teachers' Training Programs: The Oyo State Government and Afijio Local Government Education Authority should prioritize regular training programs for junior secondary school teachers. This will enhance their teaching skills, subject matter expertise, and ability to adapt to new teaching methods and technologies.
2. Classroom Size Reduction: The Oyo State Government and Afijio Local Government Education Authority should consider reducing classroom sizes in junior secondary schools. This can be achieved by constructing new classrooms, hiring more teachers, or implementing double-shift school systems.
3. Infrastructure Development: The Oyo State Government and Afijio Local Government Education Authority should invest in infrastructure

development, including classrooms, libraries, laboratories, and other educational facilities. This will provide a conducive learning environment for students and support effective teaching.

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