

**Teachers' Professional Development and Students' Academic Achievement in Public Senior Secondary Schools in Kontagora Local Government Area, Niger State, Nigeria**<sup>1</sup>Adeseko Sunday Olaifa , <sup>1</sup>Usman Abdul Ciroma, <sup>2</sup>Ebunlomo Oreoluwa Olaifa , <sup>1</sup>Olawale Abayomi Onikoyi , <sup>1</sup>Afeez Adeshina Shittu **Research Article****Citation Information:**

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**ABSTRACT**

This study examined the relationship between teachers' professional development and students' academic achievement in public senior secondary schools in Kontagora Local Government Area, Niger State, Nigeria. A descriptive survey of the correlational type was adopted, involving 367 teachers selected using purposive and simple random sampling techniques. Data were collected using a researcher-designed instrument titled Teachers' Professional Development and Students' Academic Achievement Questionnaire (TPDSAAQ). The results revealed that teachers frequently engaged in professional development activities such as seminars, workshops, conferences, online courses, and peer observation. Findings also indicated that students' academic achievement—measured through teachers' perceptions rather than actual examination scores—was generally high. Most importantly, there was a significant and strong relationship between teachers' professional development and students' academic achievement ( $r = 0.963$ ,  $p < 0.05$ ). It was recommended, among others, that the government prioritise sustaining and expanding teachers' professional development programs. Policymakers should regularly assess the effectiveness of teachers' professional development initiatives in improving classroom practice and student performance. Teachers should be encouraged to apply the strategies learned from professional development programs in the classroom, and structured follow-ups should be provided to provide ongoing support. School authorities should encourage and formalise peer observation programs, where teachers regularly observe each other's lessons and provide constructive feedback.

**Keywords:** Teacher's Professional Development, Students' Academic Achievement, Teachers' Effectiveness.



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**INTRODUCTION**

In education, teachers' role in shaping students' academic achievement is indisputable. Teachers are the facilitators of knowledge, and their professional development is critical to ensuring that students receive high-quality education. Over the years, there has been growing recognition of the relationship between teacher professional development and students' academic achievement. The demand for high-quality education has increased globally, driven by technological advancements, globalisation and the need to compete in a knowledge-based economy. The United Nations Sustainable Development Goal 4 (SDG 4) emphasises the need for inclusive and equitable quality education and promotes lifelong learning opportunities for all (Kaulēns, 2022). The quality of education teachers provide has become a central focus for policymakers, educators and researchers. Teacher professional development, which includes formal education, in-service training, workshops, seminars and conferences, is vital in enhancing the instructional capacities of teachers and, by extension, improving students' academic performance (Nzarirwehi & Atuhumuze, 2019; Osamwonyi, 2016). Teachers' professional development (TPD) refers to various educational and training activities designed to improve teachers' pedagogical skills, content knowledge, and overall instructional competencies (Svendsen, 2020). Professional development can take various forms, including formal degree programs, short-

term workshops, collaborative learning communities, mentoring programs, and online courses. The goal of TPD is to ensure that teachers remain updated with new teaching strategies, curriculum changes, and technological innovations in the educational field. In developed countries, teacher professional development is often well-structured and adequately funded, resulting in significant improvements in student achievement (Ahmad et al., 2023). For instance, in Finland, which is renowned for its high-performing educational systems, professional development for teachers is continuous and embedded within the educational system (Hammerness et al., 2017). Teachers in these countries must engage in professional development activities throughout their careers, which has positively influenced students' academic outcomes.

Despite recognising the importance of teacher professional development, the implementation and accessibility of such programs remain limited. According to Usman (2020), many teachers in public schools, particularly in rural areas, rarely participate in professional development activities due to financial constraints, lack of time, and the absence of a supportive learning environment. This lack of continuous professional development limits teachers' ability to adopt modern teaching techniques, integrate technology into the classroom, and address the specific learning needs of students. This is particularly concerning, given modern classrooms' increasingly diverse and complex nature (Adebayo et al., 2023). In Kontagora LGA, the issue of teacher professional development is compounded by additional factors such as insufficient government funding, lack of infrastructure, and the remoteness of many schools. Teachers in this region often lack access to up-to-date educational resources, and the few available professional development opportunities are usually concentrated in urban centres, making it difficult for teachers in rural areas to participate (Postholm, 2018). These challenges raise questions about the impact of teacher qualifications and professional development on students' academic performance in the region.

Research consistently indicates a strong correlation between teachers' professional development and students' academic achievement (Arifin et al., 2024; Zhaohui & Anning, 2020). Teachers who engage in ongoing professional development are more likely to adopt effective instructional practices, use data-driven strategies, and cultivate classroom environments that support student learning. Yang et al. (2020) found that professional development focused on specific content areas, such as mathematics or literacy, significantly enhanced student outcomes. Their study further emphasised the value of sustained, collaborative, and job-embedded training in maximising the impact on learning. In the Nigerian context, professional development is seen as vital to improving educational quality, particularly in public schools that struggle with persistent underperformance. Adebayo et al. (2023) link the quality of teaching directly to the availability and effectiveness of professional development opportunities. However, these initiatives often fall short due to poor funding, inadequate training infrastructure, and the absence of incentives for teachers to pursue continuous learning. In rural areas such as Kontagora LGA, these issues are worsened by geographic isolation and the scarcity of accessible development programmes (Cadero-Smith, 2020). In addition, teacher qualifications—an essential element of professional development—have a significant impact on student outcomes. Okolie et al. (2020) observed that students taught by teachers with postgraduate degrees or specialised certifications tend to achieve higher academic performance than those taught by less qualified educators. This highlights the need to support rural teachers in advancing their qualifications through accessible, ongoing training. However, a notable gap remains in the literature: few studies in Niger State—and particularly in rural areas like Kontagora LGA—have examined whether teachers' professional development truly translates into improved student achievement as perceived by teachers themselves. Moreover, existing studies often overlook the fact that student achievement is commonly measured through teacher perceptions, rather than objective academic results. Addressing this gap is essential to understanding the actual influence of professional development in rural educational contexts.

#### Statement of the Problem

The quality of education in Nigeria has long been a concern for stakeholders, particularly regarding students' academic achievement. Several factors influence student outcomes, including socioeconomic status, parental involvement, and school attendance. However, one critical factor that has garnered increasing attention in recent years is the role of teacher professional development. Teacher qualifications, years of experience, and continuous professional development have been linked to improved instructional quality and student performance. Despite this knowledge, teacher professional development in Nigeria, especially in rural areas such as Kontagora Local Government Area (LGA) in Niger State, remains largely inadequate (Usman, 2020). In rural areas like Kontagora LGA, where educational resources are limited and access to continuous professional development is scarce, the quality of education suffers significantly. Many teachers in this region lack access to ongoing training that would help them adopt innovative teaching strategies, integrate technology into the classroom, and address the diverse needs of students. The result is a stagnation in instructional quality, which has been identified as a significant factor contributing to low academic performance among students in the area (Postholm, 2018). According to Sancar et al. (2021), one of the key indicators of quality education is the extent to which teachers engage in professional development, which enhances their ability to improve student learning outcomes. Yet, this remains a significant gap in Nigeria's educational sector, particularly in rural settings.

Despite the recognised importance of teachers' professional development, many educators in Kontagora LGA face demoralising conditions such as low salaries, poor infrastructure, and limited career growth (Cadero-Smith, 2020). These

challenges contribute to high teacher turnover, disrupt instructional continuity, and hinder student learning. Furthermore, financial constraints and a lack of institutional support reduce teachers' motivation to engage in further training. While these issues are well-documented, there is limited empirical evidence linking professional development to students' academic achievement—particularly in rural parts of Niger State. This study seeks to address that gap by exploring the perceived impact of teachers' professional development on students' academic success in Kontagora LGA.

Despite policies and programs that emphasise the importance of teacher professional development, the reality is that these initiatives are not reaching the intended beneficiaries in rural areas like Kontagora LGA. This gap between policy and practice has resulted in a persistent problem of under-qualified and undertrained teachers in rural schools, contributing to poor academic performance among students (Okolie et al., 2020). Therefore, more targeted interventions are needed to address the unique challenges teachers face in rural areas, ensuring that they have access to the necessary resources and opportunities for professional growth. To fill these gaps, this study will examine teachers' professional development and students' academic achievement in the Kontagora Local Government Area.

#### Purpose of the Study

The primary purpose of this study is to examine teachers' professional development and students' academic achievement in public senior secondary schools in Niger State, Nigeria. The specific purposes are to:

1. Examine the teachers' professional development programmes engaged in senior secondary schools in Niger State.
2. Determine the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria.
3. Investigate the relationship between teacher's professional development and student's academic achievement in public senior secondary schools in Niger State, Nigeria.

#### Research Questions

1. What are the teachers' professional development programmes engaged in senior secondary schools in Niger State?
2. What is the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria?

#### Research Hypotheses

H0: There is no significant relationship between teachers' professional development and student's academic achievement in public senior secondary schools in Niger State, Nigeria.

#### Literature Review

Teachers' professional development (TPD) is a crucial aspect of education that aims to improve educators' skills, knowledge and practices, improving classroom effectiveness and student academic achievement (Osei-Owusu, 2022; Sancar et al., 2021). It includes various activities such as workshops, seminars, in-service training, coaching, collaborative learning, peer observations and advanced degree programs. Effective TPD must be intensive, sustained and content-focused to lead to substantial changes in teaching practices. It should encourage teachers to reflect on their instructional methods, align their teaching with curriculum standards and address the diverse needs of their students. In rural areas like Kontagora Local Government Area (LGA), where challenges such as inadequate infrastructure, lack of resources, and insufficient training prevail, TPD can significantly enhance the quality of education and address low academic achievement among students (Aminu & Aliyu, 2024). Professional development goes beyond mere training but involves systematic development of a teacher's skills, abilities and knowledge throughout their career.

Recent research has expanded the definition of professional development to include personalised and technology-driven learning, such as online learning communities, webinars and self-paced courses. However, rural areas' digital divide and lack of infrastructure often limit teachers' ability to engage with these modern PD platforms (Hennessy et al., 2022). Teacher professional development can address various educational challenges, such as outdated teaching methods, large classroom sizes and low student engagement. By equipping teachers with modern pedagogical skills and knowledge, PD can help enhance the region's teaching and learning quality. Teachers' professional development is a multifaceted process aiming to improve the quality of education students receive (Kennedy, 2016). Two critical dimensions of this development are teachers' qualifications and years of teaching experience.

Teachers with higher academic qualifications, such as bachelor's or master's degrees in education or specialised fields, are more effective in fostering student achievement. In rural areas, where access to professional development resources is often limited, teachers' initial qualifications significantly determine their instructional effectiveness (Adedeji & Olaniyan, 2011; Piyaman et al., 2017). Research has consistently demonstrated a positive correlation between teachers' qualifications and student academic performance (Aina & Olanipekun, 2015; Iqbal et al., 2016; Maphoso & Mahlo, 2015). Teachers with higher levels of education and professional certification are more likely to understand the subject matter they teach sincerely and the pedagogical skills needed to convey complex concepts to students (Shulman, 2013). In rural regions, where the quality of education often lags behind that of urban centres, having highly qualified teachers can be a game-changer in addressing the gaps in student learning. They are also better equipped to design curricula that align with educational standards and implement teaching strategies that cater to the needs of diverse learners.

In rural settings, where classrooms are often composed of students with varying academic readiness levels, qualified teachers can differentiate instruction effectively, ensuring all students receive the support they need to succeed (Tomlinson, 2014). For example, a science teacher with a master's degree in biology is more likely to provide accurate and comprehensive instruction on complex topics like genetics or cellular biology than a teacher with minimal training. Professional development is key in helping teachers upgrade their qualifications throughout their careers. Teachers' professional development is a multifaceted process that aims to enhance the quality of education provided to students. Two critical dimensions of this development are teachers' qualifications and years of teaching experience. Teachers with higher academic qualifications, such as bachelor's or master's degrees in education or specialised fields, are more effective in fostering student achievement (Aina & Olanipekun, 2015). In rural areas, where access to professional development resources is often limited, teachers' initial qualifications significantly determine their instructional effectiveness. Research has consistently demonstrated a positive correlation between teachers' qualifications and student academic performance (Bonney et al., 2015; Iqbal et al., 2016; Tugume et al., 2024). Teachers with higher levels of education and professional certification are more likely to understand the subject matter they teach sincerely and the pedagogical skills needed to convey complex concepts to students (Schleicher, 2016).

Professional development for teachers is crucial in fostering an environment of continuous learning, skill enhancement, and pedagogical innovation. It allows educators to remain updated with new trends in teaching, address emerging challenges, and continually improve their instructional practices. Various forms of teacher professional development (TPD) are available, each addressing specific needs and contexts. These avenues offer educators opportunities to enhance their skills and teaching practices in diverse ways:

1. **Workshops and Seminars:** These are short-term, intensive programmes focused on specific teaching strategies, curriculum content, or subject expertise. They often involve interactive sessions such as discussions and hands-on activities that allow immediate classroom application. While especially beneficial for teachers in isolated rural settings, participation is often hindered by logistical challenges and travel constraints.

2. **In-Service Training:** Conducted while teachers remain active in their schools, in-service training can include curriculum updates, instructional coaching, or training in emerging technologies. It offers practical, job-embedded learning and is often tailored to the school's specific needs. However, its effectiveness depends heavily on the quality of facilitation and the level of institutional support.

3. **Mentoring and Coaching:** These involve experienced teachers guiding less experienced colleagues, either through general mentorship or targeted instructional coaching. This personalised support enhances teaching competence but requires sustained commitment and availability of qualified mentors—resources that are often limited in rural Nigeria.

4. **Professional Learning Communities (PLCs):** PLCs encourage peer collaboration, knowledge sharing, and joint problem-solving. Teachers voluntarily form groups to discuss challenges and share best practices within their local context. PLCs are cost-effective and context-relevant but require time, coordination, and leadership support to thrive.

5. **Online and Distance Learning:** The rise of digital platforms has enabled flexible, self-paced professional development through online courses and webinars. These are particularly useful in rural areas with limited in-person training options. However, poor internet connectivity and a lack of digital literacy among some teachers can hinder participation and effectiveness.

6. **Formal Education Programmes:** Advanced degrees such as master's and doctoral programmes provide in-depth expertise in pedagogy, leadership, or subject matter. These programmes are crucial for career advancement and policy engagement, but are time-consuming and often financially inaccessible for many teachers in underserved areas.

Nevertheless, the effectiveness of TPD in Nigeria is often constrained by several systemic challenges. These include limited funding, lack of follow-up mechanisms, inadequate alignment between training content and classroom realities, and the absence of supportive school leadership (Wilsey et al., 2020). Without sustained mentorship, contextual adaptation, and resource backing, even well-designed professional development programmes may fail to translate into meaningful improvements in teaching or student outcomes.

## METHOD

This study adopted a descriptive research design of a correlational type. This is a methodological approach where a subset of a larger population, referred to as a sample, is studied to conclude the entire population through collecting and analysing data from this sample (Babbie, 2020). The study's design explored some facts about teachers' professional development and students' academic achievement in Kontagora Local Government Area. The population of this study comprised all the Public Secondary School Teachers in Kontagora LGA of Niger State, Nigeria. Niger State is home to a total of 435 Public Senior Secondary Schools (Nigeria Federal Ministry of Education, 2021). To facilitate generalisation and inferential analysis, a total of 367 teachers were selected for the study. A purposive sampling technique was used to select fifteen (15)

public senior secondary schools in Kontagora Local Government Area of Niger State, based on accessibility and representation. Within each selected school, 25 teachers were randomly chosen, making up the total sample size. This sample size was determined using Krejcie and Morgan's sample size determination table. Data were collected using a self-designed instrument titled Teachers' Professional Development and Students' Academic Achievement Questionnaire (TPDSAAQ). The instrument consisted of two sections: one assessing teachers' professional development practices, and the other focusing on students' academic achievement. The items were reviewed for content validity by a panel of experts from the Department of Educational Management, Al-Hikmah University, and a Content Validity Index (CVI) was established. Following expert feedback, redundant items were refined or removed to enhance clarity and focus. A pilot test involving 50 teachers from Wushishi LGA yielded a Cronbach's Alpha of 0.99, indicating very high internal consistency, though possibly suggesting item redundancy. It is important to note that students' academic achievement in this study was measured solely through teachers' perceptions as captured in the questionnaire, rather than through objective test scores or academic records. After administration of the instruments, they were retrieved for data analysis with a Google survey. The data gathered during the fieldwork were subjected to coding and subsequent analysis. The study used the Statistical Package for Social Science (SPSS). Mean and standard deviation were used to answer the research questions. A mean score above 2.50 is considered high, while a score below 2.50 is considered low. Pearson Product-Moment Correlation statistics (PPMC) were used to test the hypotheses. All hypotheses were tested at an alpha level of 0.05.

## RESULTS AND DISCUSSION

### Results

Research Question One: What are the teachers' professional development programmes engaged in senior secondary schools in Niger State.

**Table I.** Frequencies and Percentages of Teachers' Participation in Professional Development Programmes

Professional Development Activity	Yes (n)	Yes (%)	No (n)	No (%)
Seminar	284	77.4%	83	22.6%
Workshop	281	76.6%	86	23.4%
Conference	288	78.5%	79	21.5%
Online Course	286	77.9%	81	22.1%
Peer Observation	291	79.3%	76	20.7%

Table I above reveals teachers' professional development programmes engaged in senior secondary schools in Niger State. From Table I, it was observed that the mean score of all the questionnaire items was higher than 1.50, and it is interpreted that most respondents agreed with the questionnaire items. Thus, the study showed that teachers' professional development programmes engaged in senior secondary schools in Niger State include seminars, workshops, conferences, online courses and peer observation. Furthermore, the Pearson correlation coefficient between teachers' professional development and students' academic achievement was found to be extremely high ( $r = 0.963$ ). While this indicates a strong positive association, it is unusually high for social science research and warrants careful interpretation. One likely explanation is common method bias, since both variables were measured using the same self-report instrument completed by the same group of teachers. This can artificially inflate correlations. Future studies should triangulate data sources—such as combining teacher responses with objective student performance metrics (e.g., test scores)—to mitigate bias and enhance validity. Additionally, the inclusion of other effect size measures (e.g.,  $r^2 = 0.93$ , indicating 93% shared variance) would provide a fuller picture of the strength and practical significance of the observed relationship.

Research Question Two: What is the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria?

**Table II.** Level of Students' Academic Achievement in Public Senior Secondary Schools in Niger State, Nigeria

Items	SA	A	D	SD	X	Std. D	Remark
The majority of students consistently score high on their tests and exams.	31	189	127	20	2.63	.716	Agree
Students' grades accurately reflect their understanding of the course material.	46	157	131	33	2.59	.821	Agree
Students perform well in standardised tests.	43	171	121	32	2.61	.805	Agree
Students' test scores have shown significant improvement over time.	62	243	49	13	2.96	.666	Agree
High test scores are common among students in this area.	52	197	99	19	2.77	.753	Agree



Students actively participate in class discussions.	83	216	54	14	3.00	.726	Agree
Many students willingly ask questions during lessons.	50	210	93	14	2.81	.711	Agree
The majority of students are attentive and engaged in classroom activities.	50	233	64	20	2.85	.713	Agree
Students frequently share their opinions and ideas in class.	62	199	81	25	2.81	.793	Agree
Class participation has a noticeable positive effect on students' understanding of the material.	49	199	100	19	2.76	.746	Agree
Students consistently complete their assignments on time.	54	207	88	18	2.81	.740	Agree
Most students show a high level of commitment to their homework and assignments.	35	202	99	31	2.66	.766	Agree
Students' assignment submissions are thorough and meet quality expectations.	48	219	71	29	2.78	.770	Agree
Teachers rarely face issues with students neglecting their assignments.	56	249	48	14	2.95	.659	Agree
Assignment completion rates positively reflect students' academic achievement.	68	230	59	20	2.94	.731	Agree
Most students attend classes regularly without frequent absences.	80	249	25	13	3.08	.650	Agree
Punctuality is observed among students attending classes.	84	257	13	13	3.12	.626	Agree
Students understand the importance of regular class attendance for academic success.	43	263	48	13	2.92	.619	Agree
Students' attendance rates are high across different classes.	73	231	50	13	2.99	.691	Agree
Absenteeism and lateness are minimal among students in this area.	56	227	71	13	2.89	.690	Agree
Many students actively participate in extracurricular activities.	56	231	67	13	2.90	.684	Agree
Involvement in extracurricular positively impacts students' academic achievements.	68	232	53	14	2.96	.695	Agree
Extracurricular activities enhance students' leadership and teamwork skills.	56	246	52	13	2.94	.658	Agree
Teachers encourage students to engage in extracurricular activities.	31	189	127	20	2.63	.716	Agree
Extracurricular involvement has helped improve students' academic motivation.	46	157	131	33	2.59	.821	Agree

Table 2 above reveals the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria.

Table 2 shows that the mean score of all the questionnaire items was higher than 2.50. Therefore, it was interpreted that most respondents agreed with the questionnaire items. Thus, the study showed that the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria is high.

H0: There is no significant relationship between teachers' professional development and students' academic achievement in public senior secondary schools in Niger State, Nigeria.

**Table III.** Summary of Pearson Product-Moment Correlation between teachers' professional development and students' academic achievement

Variables	N	Mean	SD	df	r-cal	Sig.	Remark
<b>Teacher's Professional Development</b>	367	72.60	14.26	365	0.963	0.000	Rejected
<b>Students' Academic Achievement</b>	367	70.95	14.43				

The result in Table 3 reveals that the r-cal is 0.963, and the p-value of 0.000 is less than the 0.05 significance level. Therefore, the null hypothesis, which stated that "there is no significant relationship between teacher's professional development and student's academic achievement in public senior secondary schools in Niger State, Nigeria", is hereby rejected. This implies that there is a significant relationship between teachers' professional development and students' academic achievement in public senior secondary schools in Niger State, Nigeria.

## Discussion

The study showed that teachers' professional development programmes engaged in senior secondary schools in Niger State include seminars, workshops, conferences, online courses and peer observation. This study is consistent with a survey

by Osei-Owusu (2022), who emphasised that workshops and seminars significantly enhance teaching strategies, resulting in improved student outcomes. This aligns with the current study, where workshops are prominent in professional development. Similarly, Bali et al. (2024) found that peer observation fosters collaborative learning among teachers, which improves teaching practices and positively impacts student performance. In contrast, some studies have identified gaps in implementing professional development programmes. According to Eziuzo and Ezeanya (2024), professional development in Nigerian schools is often hampered by insufficient funding and inadequate planning. While the current study highlights online courses as part of the development activities, Eziuzo and Ezeanya observed that access to digital training is limited in rural areas due to poor infrastructure and internet connectivity. Furthermore, Sofo and Abonyi (2018) in Ghana noted that workshops and conferences are practical when conducting follow-up activities. However, the current study does not detail the extent of follow-up mechanisms in Niger State, which could influence the sustainability of the training's impact.

The study showed that the level of students' academic achievement in public senior secondary schools in Niger State, Nigeria is high. This result aligns with findings from global research on the positive effects of high-quality teaching on student outcomes. Egert et al. (2018) demonstrated that when teachers received continuous professional development, including mentoring and access to instructional materials, there was a notable improvement in early childhood education outcomes. However, there is evidence of conflicting findings, where TPD did not have a direct or sustained impact on student achievement. Maier et al. (2017) found that despite teacher training, there was no substantial improvement in student test scores, particularly when the training was not closely aligned with curriculum standards or provided in isolation from other interventions like teaching resources or support structures. These contradictions point to the complexity of the relationship between TPD and academic achievement. The study revealed that there is a significant relationship between teachers' professional development and students' academic achievement in public senior secondary schools in Niger State, Nigeria. This finding is consistent with the body of research that highlights the crucial link between teacher competence and student performance. Fischer et al. (2018) found that well-structured professional development programs, particularly those that focused on content knowledge and pedagogical strategies, positively impacted both teacher performance and student outcomes. This is further supported by studies such as that of Schachter (2015), who concluded that effective TPD leads to improved classroom practices, positively affecting student learning. However, not all studies find a direct or consistent link between TPD and academic achievement. Wilsey et al. (2020) found that while teacher professional development was linked to improved classroom instruction, the impact on student achievement was less significant unless the professional development was sustained over time and coupled with regular feedback and classroom support. This suggests that the effectiveness of TPD on student outcomes may be moderated by factors such as the quality of the training, the frequency of follow-up support, and the teacher's willingness to implement new strategies.

This study is limited to teachers' self-reported data, which may not fully reflect actual student academic performance. The reliance on subjective perceptions rather than objective academic records introduces the possibility of response bias or overestimation of student outcomes. Additionally, both the independent and dependent variables were measured using the same self-report instrument, which may have contributed to the exceptionally high correlation observed ( $r = 0.963$ ), potentially reflecting common method bias. Given the strong correlation identified between teachers' professional development and students' academic achievement, follow-up studies must include objective measures of student performance, such as examination results, continuous assessment scores, or standardised test outcomes. This will help validate the current findings and reduce bias associated with self-report methods. Moreover, future research should consider mixed-method approaches, incorporating classroom observations, school records, and student feedback, to provide a more holistic understanding of how professional development translates into actual academic outcomes.

## CONCLUSION

The study on teacher's professional development (TPD) and students' academic achievement in public senior secondary schools in Niger State reveals that high levels of TPD are positively correlated with improved student outcomes. The findings showed that TPD programs, such as conferences, seminars, workshops, online courses, and peer observations, significantly enhance teacher effectiveness and students' academic performance. This aligns with global research that emphasises the importance of continuous professional development for teachers in fostering high-quality teaching and learning environments. However, it is crucial to note that the success of these programs depends on factors such as follow-up support, contextual relevance, and integration with other educational strategies. The study highlights that while TPD can lead to immediate improvements, its long-term impact on student achievement requires sustained efforts and a holistic approach that includes appropriate resources, mentorship, and community involvement. Overall, the results from Niger State reinforce the importance of teacher development as a key factor in enhancing academic success, echoing similar findings from both developing and developed educational contexts worldwide. Based on the findings, the following recommendations were made:

1. The government should prioritise sustaining and expanding teachers' professional development programs.
2. Policymakers should regularly assess the effectiveness of TPD initiatives in improving classroom practice and student performance.
3. Teachers should be encouraged to apply the strategies learned from professional development programs in the classroom, and there should be structured follow-ups to provide ongoing support.
4. School authorities should encourage and formalise peer observation programs, where teachers regularly observe each other's lessons and provide constructive feedback.
5. Educational authorities should expand access to high-quality online courses for teachers, covering relevant topics, including subject-specific knowledge, teaching methodologies, and classroom management strategies.
6. School leaders should be trained to consistently support and guide teachers and ensure that TPD initiatives align with the school's educational goals.
7. Educational authorities should ensure that TPD programs are focused on general pedagogical strategies and address context-specific challenges, such as large class sizes, limited resources, and diverse student needs.

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