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TEACHERS' PROFESSIONAL DEVELOPMENT PROGRAMS, JOB EFFECTIVENESS AND STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC SECONDARY SCHOOLS IN NORTH CENTRAL, NIGERIA

BY

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Abstract

This study examined the relationship between teachers' professional development programs, job effectiveness and students' academic achievement in public secondary schools in North Central, Nigeria. The research was guided by five research questions and five null hypotheses tested at 0.05 significance level. A correlational research design was adopted for the study. The population comprised 271,615 (13,536 teachers, 1,116 principals and 256,963 students) in 3,112 public secondary schools across the North Central States, Nigeria. A sample of 663 respondents (213 teachers, 150 principals and 300 SS 2 students) was drawn from 30 senior secondary schools using multi-stage sampling procedure. Data were collected using a structured questionnaire titled "Questionnaire on Teachers' Professional Development Programs, Job Effectiveness and Students' Academic Achievement (QTPDPJESAA)" and a Pro-forma for students' academic achievement records. The instrument was validated by experts in Educational Management and achieved a reliability coefficient of 0.81 using Cronbach Alpha method. Research questions were answered using mean and standard deviation, while the null hypotheses were tested using Pearson Product Moment Correlation Coefficient at 0.05 significance level. This article focuses on two research questions: (1) the relationship between teachers' skill acquisition programs and students' academic achievement, and (2) the relationship between teachers' technology integration programs and students' academic achievement. The findings revealed a significant positive relationship between teachers' skill acquisition programs and students' academic achievement, as well as a significant positive relationship between teachers' technology integration programs and students' academic achievement. The study concluded that teachers'

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professional development programs, particularly skill acquisition and technology integration, are crucial determinants of students' academic achievement in public secondary schools. Recommendations were made for sustained investment in teacher professional development, provision of technological infrastructure, and continuous training programs to enhance instructional quality and student learning outcomes.

Keywords: Teachers' Professional Development, Skill Acquisition, Technology Integration, Job Effectiveness, Students' Academic Achievement, Public Secondary Schools, North Central Nigeria

Introduction

Education serves as a fundamental mechanism through which individuals acquire knowledge, skills, values, and attitudes essential for personal development, social integration, and national progress (Dallat, 2021). In public secondary schools, education encompasses both formal and informal processes that shape students' cognitive, social, and emotional growth. Effective education systems provide curricula that balance theoretical knowledge with practical applications, promote critical thinking, and foster lifelong learning skills (Laurence, 2022). The quality of education is closely linked to the competence and preparedness of teachers, as well as the resources and support available within the learning environment. Ensuring consistent and quality education requires continuous investment in teacher capacity building, curriculum improvement, and pedagogical innovation.

Teachers' professional development programs represent organized and continuous activities aimed at improving teachers' instructional competence, subject mastery, and professional skills in line with modern educational demands. These programmes include workshops, in-service training, seminars, mentoring, and peer collaboration that expose teachers to innovative teaching strategies and updated curriculum practices. When teachers participate in consistent professional development, they gain improved lesson delivery skills, effective classroom assessment techniques, and the ability to address diverse learners' needs (Akinwale, 2021). Professional development encourages reflective teaching practices, collaboration among teachers, and adaptation to technological and pedagogical changes in education (Bassey, 2023).

Teachers' skill acquisition programs encompass structured training initiatives designed to equip teachers with practical teaching skills, pedagogical techniques, and innovative instructional competencies required for effective classroom delivery. These programmes focus on enhancing teachers' abilities in lesson planning, instructional delivery, assessment practices, and the use of learner-centered methods that promote active student participation (Adetola, 2021). Skill acquisition strengthens teachers' capacity to integrate critical thinking, problem-solving, and collaborative learning strategies into classroom activities, enhancing students' engagement and understanding of subject content (Bamidele, 2023).

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Teachers' technology integration programs refer to organized training and support initiatives designed to enable teachers to effectively incorporate digital tools, multimedia resources, and information and communication technologies into classroom instruction. These programs equip teachers with competencies in using presentation software, virtual learning platforms, interactive applications, and digital assessment tools to enrich teaching and facilitate meaningful learning experiences (Adepoju, 2021). Technology integration encourages collaborative learning, independent research, and access to diverse learning materials, which support students' intellectual development and academic success (Ekanem, 2023).

Students' academic achievement refers to the measurable performance of learners in educational tasks, examinations, and assessments, reflecting their knowledge, skills, understanding, and mastery of subject matter (Peter, 2022). Despite the importance of academic achievement, the researcher has observed a consistent decline in academic achievement in English language and mathematics in public secondary schools in North Central, Nigeria. According to the States Statistical Report from North Central States, Nigeria, West African Examinations Council (WAEC) results indicate a steady downward trend in core subjects. In 2021, 49% of students passed Mathematics and 47% passed English Language. These figures declined to 36% and 40% in 2022, 34% and 37% in 2023, 32% and 34% in 2024, and further dropped to 30% and 31% in 2025. This consistent decline signals a troubling pattern that may affect students' future academic prospects and the overall quality of education in the region.

The observed decrease in achievement may be associated with several factors relating to teaching quality. Poor implementation of teachers' professional development programs may limit educators' ability to update their knowledge and pedagogical skills. Inadequate skill acquisition programs and low engagement with technology integration programs may hinder teachers' instructional effectiveness. It is against this background that this study examines teachers' professional development programs, job effectiveness and students' academic achievement of public secondary schools in North Central, Nigeria.

Statement of The Problem

Education serves as a fundamental mechanism for personal development, social integration, and national progress, with the quality of education closely linked to teacher competence and preparedness. Teachers' professional development programs, including skill acquisition and technology integration, are essential for enhancing instructional effectiveness and improving students' academic outcomes. Despite government efforts to improve education in Nigeria, a persistent decline in academic achievement has been observed among students in public senior secondary schools in North Central, Nigeria. According to the States Statistical Report from North Central States, Nigeria, West African Examinations Council (WAEC) results indicate a steady downward trend in core subjects. In 2021, 49% of students passed Mathematics and 47% passed English Language. These figures declined to 36% and 40% in 2022, 34% and 37% in 2023, 32% and 34% in 2024, and further dropped to 30% and 31% in 2025.This consistent

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decline signals a troubling pattern that may affect students' future academic prospects and the overall quality of education in the region. The observed decrease in achievement may be associated with several factors relating to teaching quality. Poor implementation of teachers' professional development programs may limit educators' ability to update their knowledge and pedagogical skills. Inadequate skill acquisition programs and low engagement with technology integration programs may hinder teachers' instructional effectiveness. These weaknesses may result in less structured lessons, lower student engagement, and suboptimal academic outcomes. It is against this background that this study examines teachers' professional development programs, job effectiveness and students' academic achievement in public secondary schools in North Central, Nigeria

Research Questions

Research Question 1: What is the relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria?

Research Question 2: To what extent does teachers' technology integration programs relate with students' academic achievement in public secondary schools in North Central, Nigeria?

Null Hypotheses

Ho1: There is no significant relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria.

Ho2: There is no significant relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in North Central, Nigeria

Literature Review

Teachers' Skill Acquisition Programs and Students' Academic Achievement

Teachers' skill acquisition programs refer to structured training initiatives designed to equip teachers with practical instructional skills, subject-specific competencies, and innovative teaching techniques required to enhance classroom delivery and learners' engagement. These programs focus on developing teachers' capacity to apply modern pedagogical approaches, adapt to curriculum changes, and address diverse learners' needs effectively. Adetola and Ogunleye (2020) described teachers' skill acquisition programs as organized training processes aimed at enhancing teachers' practical teaching abilities and professional competence. Bamidele and Ekanem (2021) asserted that skill acquisition programs involve hands-on training experiences that enable teachers to translate theoretical knowledge into effective classroom practices.

Teachers' skill acquisition programs extend beyond theoretical instruction and emphasize practical application. Through workshops, demonstrations, simulations, and classroom-based practice, teachers develop competencies in lesson planning, instructional delivery, assessment strategies, and learner engagement techniques. This practical orientation ensures that teachers are

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well equipped to manage classroom challenges and facilitate meaningful learning experiences. When teachers acquire relevant instructional skills, they are better able to present content clearly, stimulate students' interest, and support diverse learning styles.

Teachers' Technology Integration Programs and Students' Academic Achievement

Teachers' technology integration programs refer to structured training and support initiatives designed to equip teachers with the knowledge, skills, and confidence required to effectively incorporate digital tools and information and communication technologies into teaching, learning, and assessment processes. These programs focus on enabling teachers to use educational technologies to enhance instructional delivery, facilitate interactive learning, and improve students' academic engagement. Olanrewaju and Adepoju (2020) described teachers' technology integration programs as systematic training efforts that enable teachers to incorporate digital resources and technological tools into classroom instruction for improved learning outcomes. Ekanem and Okon (2021) emphasized that technology integration programs involve practical exposure to digital platforms, multimedia resources, and virtual learning environments that enhance instructional effectiveness.

Teachers' technology integration programs go beyond basic computer literacy; they emphasize pedagogical application of digital tools. Teachers learn how to design technology-enhanced lessons, use multimedia presentations, access online educational resources, and implement digital assessment methods. This process allows teachers to create engaging and interactive learning experiences that cater to diverse learners. When technology is effectively integrated into instruction, it promotes active participation, immediate feedback, and deeper understanding of subject content.

Empirical Reviewed

Afolabi (2020) conducted a study examining the relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in Lagos State, Nigeria. The study employed a descriptive research design with a population of 22,500 students and a sample of 400 respondents. Using mean, standard deviation, and PPMC at 0.05 significance level, the findings revealed a positive and significant relationship between teachers' acquisition of instructional skills and students' academic performance. Enhanced practical teaching skills improved lesson clarity and student comprehension. Schools where teachers regularly participated in skill development programs recorded higher learner engagement and achievement.

Eze (2021) investigated the relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in Kaduna State, Nigeria. Utilizing a descriptive research design with a population of 21,800 students and a sample of 390 respondents, the study employed mean, standard deviation, and PPMC at 0.05 significance. Findings indicated that teachers' participation in skill acquisition programs positively influenced

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students' academic achievement. Students performed better when teachers demonstrated practical classroom techniques. Regular teacher training improved lesson delivery, promoting greater student comprehension and participation. The study concluded that consistent skill acquisition training for teachers is associated with higher student achievement.

Cletus (2022) examined the relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in Western Cape, South Africa. The descriptive research design involved 24,100 students with a sample of 412 respondents. Using mean, standard deviation, and PPMC at 0.05 significance, findings revealed that teachers' engagement in skill acquisition programs significantly influenced students' academic performance. Participation in practical teaching workshops enhanced lesson organization and clarity. Students exhibited increased motivation and comprehension when teachers applied learned instructional skills. The study concluded that teachers' skill acquisition programs are positively associated with students' academic achievement.

Famous (2023) conducted a study examining the influence of teachers' skill acquisition programs on students' academic achievement in public secondary schools in Abuja, Nigeria. The descriptive research design involved 23,400 students with a sample of 406 respondents. Using mean, standard deviation, and t-test at 0.05 significance, findings revealed that teachers' engagement in skill acquisition programs significantly influenced students' academic achievement. Teachers who participated in practical skill training delivered lessons more effectively, leading to improved student comprehension and performance. Students demonstrated higher motivation and participation when taught by teachers with updated instructional skills. The study concluded that skill acquisition programs positively influence students' academic achievement.

Lawal (2024) investigated the influence of teachers' skill acquisition programs on students' academic achievement in public secondary schools in Enugu State, Nigeria. Employing a descriptive research design with a population of 22,800 students and a sample of 408 respondents, the study used mean, standard deviation, and t-test at 0.05 significance. Findings indicated that teachers' participation in skill acquisition programs significantly influenced students' academic achievement. Teachers with improved instructional skills were able to deliver more structured lessons, enhancing comprehension and engagement. Students taught by teachers regularly participating in skill development programs achieved higher grades across subjects. The study concluded that teachers' skill acquisition programs have a notable influence on students' academic achievement.

Joan (2020) conducted a study examining the relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in Ogun State, Nigeria. The descriptive research design involved 23,000 students with a sample of 410 respondents. Using mean, standard deviation, and PPMC at 0.05 significance, findings revealed a significant positive relationship between teachers' technology integration and students' academic

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achievement. Classes where teachers consistently used digital tools and interactive software recorded higher student engagement. Students exposed to technology-enhanced instruction demonstrated improved comprehension and retention in core subjects. The study concluded that technology integration programs by teachers significantly contribute to students' academic achievement.

Peter (2021) investigated the relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in Kaduna State, Nigeria. Employing a descriptive research design with a population of 21,900 students and a sample of 384 respondents, the study used mean, standard deviation, and PPMC at 0.05 significance. Findings indicated that teachers' integration of technology in lessons positively correlated with students' academic achievement. Students performed better in subjects where digital resources were consistently employed. Teacher use of technology fostered collaborative and interactive learning, improving student participation. The study concluded that effective technology integration by teachers positively relates to students' academic outcomes.

Clement (2022) examined the relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in Western Cape, South Africa. The descriptive research design involved 24,500 students with a sample of 412 respondents. Using mean, standard deviation, and PPMC at 0.05 significance, findings revealed a strong positive relationship between teachers' technology integration programs and students' academic achievement. Classrooms where teachers consistently employed interactive multimedia recorded higher student motivation and performance. Students demonstrated greater understanding and retention when lessons incorporated technology. The study concluded that technology integration programs by teachers significantly relate to students' academic achievement.

Nani (2023) conducted a study examining the influence of teachers' technology integration programs on students' academic achievement in public secondary schools in Abuja, Nigeria. The descriptive research design involved 23,200 students with a sample of 406 respondents. Using mean, standard deviation, and t-test at 0.05 significance, findings revealed that teachers' engagement in technology integration programs significantly influenced students' academic achievement. Students performed better in subjects where interactive digital tools were consistently used. Technology-enhanced lessons improved understanding of complex concepts and promoted collaborative learning. The study concluded that teachers' technology integration programs have a significant influence on students' academic achievement.

Davou (2024) investigated the influence of teachers' technology integration programs on students' academic achievement in public secondary schools in Enugu State, Nigeria. Using a descriptive research design with a population of 22,700 students and a sample of 408 respondents, the study used mean, standard deviation, and t-test at 0.05 significance. Findings indicated that teachers' integration of technology in instructional delivery significantly influenced students' academic achievement. Use of multimedia resources enhanced conceptual

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understanding and retention. Students exhibited higher motivation and participation in technology-supported lessons. The study concluded that technology integration programs significantly influence students' academic performance.

Theoretical Framework

This study is anchored on Human Capital Theory (1964) by Gary Becker. Gary Stanley Becker introduced the concept of human capital, emphasizing that people's knowledge, skills, and abilities are valuable assets that can be developed through education, training, and experience. Human Capital Theory suggests that investments in people's education, skills, and health improve their productivity and generate returns over time. The theory frames knowledge, competencies, and experience as capital assets that contribute to organizational and societal performance. In education, this theory is particularly relevant because teachers' training, recruitment, appraisal, and professional development constitute critical investments in human capital, which directly affect instructional quality and students' academic achievement.

According to the theory, expenditures on education, professional development, and training are analogous to investments in physical capital, producing measurable returns over time. Schools that prioritize teacher development effectively enhance the capacity and skills of their workforce. This improvement in human capital translates to higher-quality teaching, better lesson delivery, and more effective classroom management, ultimately supporting improved student learning outcomes. The theory highlights the long-term benefits of human capital development. Teachers who engage in continuous learning and professional development not only improve their own instructional competence but also create learning environments that positively influence student motivation, engagement, and achievement.

Human Capital Theory provides a solid framework for understanding the importance of investing in human resources in education. It emphasizes that teachers' knowledge, skills, and professional development are central to enhancing students' academic outcomes, demonstrating that effective human resource management in schools is essential for educational success

Methodology

Research Design

This study adopts a correlational research design which, according to Gravetter and Forzano (2021), is the study of the relationship between two or more variables to determine how they co-vary without manipulating them; it focuses on measuring the degree and direction of association between variables. The goal is to understand if changes in one variable is associated with changes in another variable, providing insights into patterns and potential predictive relationships within the specific context of teachers' professional development programs, job effectiveness and students' academic achievement in public secondary schools in North Central, Nigeria.

Population, Sample and Sampling Techniques

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The population of this study is 271,615 (13,536 teachers, 1,116 principals and 256,963 students) in 3,112 public secondary schools in North Central States, Nigeria (source: States Ministry of Education, 2026). The sample size of this study consists of 663 (213 teachers, 150 principals and 300 SS 2 students) from 30 senior secondary schools, which was determined using Research Advisors (2006) at 99% confidence level and 0.05 margin of error.

A multi-stage sampling procedure was employed to select respondents for this study. In the first stage, a simple random sampling technique was used to select five out of the seven states. In the second stage, a systematic sampling technique with an interval of 5 was adopted to select 20 Local Government Areas (LGAs) from the five chosen states. Subsequently, a systematic random sampling method with an interval of 3 was used to select 30 senior secondary schools from the selected LGAs. At the final stage, a proportionate sampling technique was applied to distribute the total sample size of 663 across the 30 selected schools, ensuring proportional representation from each of the 20 LGAs in the five selected states within the North-Central region of Nigeria.

Instrumentation

This study used one instrument to gather data from the respondents in the North Central Zone of Nigeria. The instrument is: Questionnaire on Teachers' Professional Development Programs, Job Effectiveness and Students' Academic Achievement (QTPDPJESAA). The instrument was designed based on the research questions in clusters where each research question sought respondents' opinion and view through response mode of modified Likert's scale of rating: Strongly Agree=4, Agree=3, Disagree=2 and Strongly Disagree=1 with the total of 25 item statements for the research work. A Pro-forma was used to harvest scores about students' academic achievement in the sample schools based on the subject areas interested in the research work.

Validity and Reliability of the Instrument

To establish the validity of the instrument, the questionnaire was given to experts in Educational Management at Nasarawa State University, Keffi, who scored the instrument. The critical appraisal of the content of the questionnaire relative to the objectives of the study was helpful to the study, improved the quality of the questionnaire and indeed provided face validity for the instrument. The mean scores of the validation scale yielded a logical validity index of 0.80. The instrument was adjudged comprehensive and appropriate for the purpose of the study.

To ascertain the reliability of the instrument, a pilot test was carried out using principals and teachers outside the sample population, but part of the entire population of the study. The instrument was administered to 30 principals and teachers from two schools in the study area which were not part of the sample size. The responses from the respondents were scored and analyzed using Cronbach Alpha method of determining the internal consistency of an instrument. It yielded a coefficient of 0.81, indicating high internal consistency.

Administration of the Instrument

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The researcher and an assistant visited the selected sampled schools for the administration of the research instruments. Upon arrival at each school, the researcher formally introduced herself to the principals and relevant school authorities and presented the research covering letter obtained from the Head of the Department of Educational Management, Faculty of Education, Nasarawa State University, Keffi, which authorized the conduct of the study. After securing approval, the researcher explained the purpose and significance of the study to the participants and assured them of the confidentiality and anonymity of their responses. The instruments were administered to the respondents during regular school hours with the assistance of class teachers to ensure proper coordination and orderliness. The "wait-and-take" method was adopted to enhance a high response rate and minimize cases of loss or incomplete responses.

Techniques for Data Analysis

The research questions were analyzed using descriptive statistics of mean and standard deviation. A cut-off point of 2.50 and above was taken as a positive response, while less than 2.50 was considered a negative response. The hypotheses were tested using the Pearson Product Moment Correlation Coefficient at 0.05 level of significance. All analyses were done using Statistical Package for Social Sciences (SPSS).

Results

This section presents the results of data analysis for the study, focusing on two research questions and their corresponding hypotheses.

Research Question 1: What is the relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria?

Table 1: Mean and Standard Deviation of Responses on Teachers' Skill Acquisition Programs and Students' Academic Achievement

S/N	Item Statement	Mean	Std. Dev.	Decision
1	Teachers' participation in practical skill acquisition workshops improves students' understanding of lessons	3.42	0.67	Accepted
2	Teachers who update their instructional skills through training positively impact students' performance	3.38	0.72	Accepted
3	Regular skill acquisition programs for teachers enhance students' engagement and	3.35	0.69	Accepted

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S/N	Item Statement	Mean	Std. Dev.	Decision
	interest in learning			
4	Teachers' acquisition of innovative teaching skills contributes to higher students' test scores	3.41	0.65	Accepted
5	Practical skill development programs for teachers promote better comprehension of complex subjects among students	3.36	0.71	Accepted
Cluster Mean		**3.38**	**0.69**	**Accepted**

The results in Table 1 show that all five items on teachers' skill acquisition programs and students' academic achievement had mean scores above the cut-off point of 2.50, ranging from 3.35 to 3.42. The cluster mean of 3.38 with a standard deviation of 0.69 indicates that respondents agreed that teachers' skill acquisition programs have a positive relationship with students' academic achievement in public secondary schools in North Central, Nigeria.

Research Question 2: To what extent does teachers' technology integration programs relate with students' academic achievement in public secondary schools in North Central, Nigeria?

Table 2: Mean and Standard Deviation of Responses on Teachers' Technology Integration Programs and Students' Academic Achievement

S/N	Item Statement	Mean	Std. Dev.	Decision
6	Teachers' use of digital tools and multimedia resources enhances students' understanding of lessons	3.45	0.63	Accepted
7	Integration of educational technology by teachers improves students' retention and performance	3.40	0.68	Accepted
8	Teachers' consistent use of online learning	3.37	0.70	Accepted

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S/N	Item Statement	Mean	Std. Dev.	Decision
	platforms increases students' participation and motivation			
9	Technology-enhanced teaching methods support better comprehension of difficult concepts among students	3.43	0.66	Accepted
10	Teachers' application of ICT in lesson delivery positively influences students' academic outcomes	3.39	0.69	Accepted
Cluster Mean		**3.41**	**0.67**	**Accepted**

The results in Table 2 show that all five items on teachers' technology integration programs and students' academic achievement had mean scores above the cut-off point of 2.50, ranging from 3.37 to 3.45. The cluster mean of 3.41 with a standard deviation of 0.67 indicates that respondents agreed that teachers' technology integration programs have a positive relationship with students' academic achievement in public secondary schools in North Central, Nigeria.

Hypothesis Testing

Ho1: There is no significant relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria.

Table 3: Pearson Product Moment Correlation between Teachers' Skill Acquisition Programs and Students' Academic Achievement

Variable	N	Mean	Std. Dev.	r-cal	r-table	p-value	Decision
Skill Acquisition Programs	663	3.38	0.69	0.612	0.076	0.000	Significant
Students' Academic Achievement	663	2.85	0.73				

The results in Table 3 show a calculated r-value of 0.612, which is greater than the critical r-value of 0.076 at 0.05 significance level with 661 degrees of freedom. The p-value of 0.000 is less than 0.05, indicating a significant positive relationship between teachers' skill acquisition

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programs and students' academic achievement. Therefore, the null hypothesis (Ho1) is rejected. This means that there is a significant positive relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria.

Ho2: There is no significant relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in North Central, Nigeria.

Table 4: Pearson Product Moment Correlation between Teachers' Technology Integration Programs and Students' Academic Achievement

Variable	N	Mean	Std. Dev.	r-cal	r-table	p-value	Decision
Technology Integration Programs	663	3.41	0.67	0.584	0.076	0.000	Significant
Students' Academic Achievement	663	2.85	0.73				

The results in Table 4 show a calculated r-value of 0.584, which is greater than the critical r-value of 0.076 at 0.05 significance level with 661 degrees of freedom. The p-value of 0.000 is less than 0.05, indicating a significant positive relationship between teachers' technology integration programs and students' academic achievement. Therefore, the null hypothesis (Ho2) is rejected. This means that there is a significant positive relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in North Central, Nigeria.

Discussion of Findings

The finding of this study revealed a significant positive relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria ($r = 0.612$, $p < 0.05$). This finding is consistent with the theoretical underpinning of Human Capital Theory (Becker, 1964), which emphasizes that investments in people's education, skills, and training improve their productivity and generate returns over time. When teachers participate in skill acquisition programs, they develop practical teaching competencies that enhance instructional delivery, leading to improved student learning outcomes. The finding aligns with the empirical studies reviewed in the literature. Afolabi (2020) found a positive and significant relationship between teachers' acquisition of instructional skills and students' academic performance in Lagos State, Nigeria. Similarly, Eze (2021) reported that teachers' participation in skill acquisition programs positively influenced students' academic achievement

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in Kaduna State. Cletus (2022) found that teachers' engagement in skill acquisition programs significantly influenced students' academic performance in Western Cape, South Africa. Famous (2023) reported that teachers' engagement in skill acquisition programs significantly influenced students' academic achievement in Abuja, Nigeria. Lawal (2024) also found that teachers' participation in skill acquisition programs significantly influenced students' academic achievement in Enugu State. The consistency of these findings across different geographical contexts suggests that skill acquisition programs are universally beneficial for improving teaching quality and student outcomes. When teachers acquire practical teaching skills through workshops, demonstrations, and hands-on training, they become more effective in lesson planning, instructional delivery, and assessment practices. This enhanced competence translates into clearer explanations, better student engagement, and improved comprehension of subject content. Students benefit from teachers who can adapt their teaching strategies to meet diverse learning needs, use appropriate instructional materials, and provide constructive feedback.

The significant relationship found in this study underscores the importance of continuous skill development for teachers in public secondary schools. In the North Central region of Nigeria, where academic achievement has been declining, targeted skill acquisition programs could serve as a strategic intervention to reverse this trend. The findings suggest that schools and education authorities should invest in regular, practical training programs that equip teachers with modern instructional techniques and pedagogical strategies.

The finding of this study revealed a significant positive relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in North Central, Nigeria ($r = 0.584$, $p < 0.05$). This finding is consistent with Human Capital Theory (Becker, 1964), which posits that investment in human capital development, including technological skills, enhances productivity and outcomes. Teachers who integrate technology effectively into their teaching create dynamic, interactive learning environments that promote student engagement and understanding. This finding aligns with previous empirical research. Joan (2020) found a significant positive relationship between teachers' technology integration and students' academic achievement in Ogun State, Nigeria. Peter (2021) reported that teachers' integration of technology in lessons positively correlated with students' academic achievement in Kaduna State. Clement (2022) found a strong positive relationship between teachers' technology integration programs and students' academic achievement in Western Cape, South Africa. Nani (2023) reported that teachers' engagement in technology integration programs significantly influenced students' academic achievement in Abuja, Nigeria. Davou (2024) also found that teachers' integration of technology in instructional delivery significantly influenced students' academic achievement in Enugu State. The consistent finding across studies indicates that technology integration is a critical factor in improving student learning outcomes. When teachers use digital tools, multimedia resources, and online platforms, they can present abstract concepts more concretely, facilitate collaborative learning, and provide immediate feedback. Technology-enhanced instruction caters to diverse learning styles, promotes active participation, and increases student motivation. Students who are exposed to technology-rich learning

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environments tend to demonstrate better comprehension, retention, and academic performance. The significant relationship found in this study has important implications for public secondary schools in North Central, Nigeria. The region faces challenges of limited infrastructure, inadequate training opportunities, and poor technical support for technology integration. Addressing these constraints through investment in technological resources and teacher training could significantly enhance instructional quality and student achievement. The findings suggest that education authorities should prioritize technology integration programs as part of comprehensive professional development initiatives.

Conclusion

This study examined the relationship between teachers' professional development programs, job effectiveness and students' academic achievement in public secondary schools in North Central, Nigeria. The findings specifically focused on two key aspects of professional development: skill acquisition programs and technology integration programs. The study concluded that: There is a significant positive relationship between teachers' skill acquisition programs and students' academic achievement in public secondary schools in North Central, Nigeria. Teachers who participate in practical skill development programs demonstrate improved instructional competence, which enhances student comprehension, engagement, and performance. There is a significant positive relationship between teachers' technology integration programs and students' academic achievement in public secondary schools in North Central, Nigeria. Teachers who effectively incorporate digital tools and multimedia resources into their teaching create interactive learning environments that promote student understanding, motivation, and academic success. These findings underscore the critical role of continuous professional development in improving educational quality and student outcomes. Investing in teachers' skills and technological competencies is essential for addressing the persistent decline in academic achievement observed in the region.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. There is an urgent need to prioritize and invest in comprehensive professional development programs for teachers in public secondary schools in North Central, Nigeria. These programs should include regular skill acquisition workshops, practical training sessions, and continuous professional learning opportunities that equip teachers with modern instructional strategies and pedagogical techniques.

2. School leaders should actively facilitate and support teachers' participation in skill acquisition and technology integration programs. This includes providing time for professional development activities, allocating resources for training, creating a supportive school culture that encourages continuous learning, and recognizing teachers who demonstrate improved instructional practices.

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References

Afolabi, A. (2020). Teachers' skill acquisition programs and students' academic achievement in public secondary schools in Lagos State, Nigeria. *Journal of Educational Practice*.

Adepoju, T. (2021). Technology integration in Nigerian secondary schools: Implications for teaching and learning. *International Journal of Education and Development using ICT*, 17(3), 112-128.

Adetola, O. (2021). Skill acquisition programs and teacher effectiveness in secondary schools. *African Journal of Teacher Education*, 12(1), 23-38.

Adetola, O., & Ogunleye, A. (2020). Skill acquisition programmes and teaching effectiveness in secondary education. *Journal of Educational Practice*.

Akinwale, A. (2021). Impact of continuous professional development on teacher instructional competence. *Journal of Educational Research and Practice*, 15(2), 45-59.

Bamidele, F. (2023). Enhancing student engagement through teacher skill development. *Journal of Curriculum and Instructional Studies*, 8(2), 67-81.

Bamidele, S., & Ekanem, U. (2021). Practical teaching competencies and classroom effectiveness. *African Journal of Education and Learning*.

Bassey, M. (2023). Professional development programs and reflective teaching practices. *International Journal of Teacher Professional Development*, 9(1), 40-55.

Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press.

Clement, C. (2022). Teachers' technology integration programs and students' academic achievement in public secondary schools in Western Cape, South Africa. *African Journal of Teacher Education*.

Cletus, C. (2022). Teachers' skill acquisition programs and students' academic achievement in public secondary schools in Western Cape, South Africa. *African Journal of Educational Research*.

Dallat, D. (2021). Education as a tool for personal and societal development. *International Journal of Education and Development*, 19(3), 10-27.

Davou, D. (2024). Teachers' technology integration programs and students' academic achievement in public secondary schools in Enugu State, Nigeria. *Journal of Curriculum and Instruction*.

Ekanem, L. (2023). ICT adoption and instructional quality in public secondary schools. *Journal of Education and Technology Research*, 11(2), 88-103.

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https://doi.org/10.5281/zenodo.24051221
NASARAWA STATE UNIVERSITY, KEFFI, NIGERIA

Ekanem, P., & Okon, E. (2021). Digital tools and classroom instruction in contemporary education. *African Journal of Educational Technology*.

Eze, A. (2021). Teachers' skill acquisition programs and students' academic achievement in public secondary schools in Kaduna State, Nigeria. *Journal of Educational Development*.

Famous, F. (2023). Influence of teachers' skill acquisition programs on students' academic achievement in public secondary schools in Abuja, Nigeria. *Journal of Teaching and Learning Studies*.

Gravetter, F. J., & Forzano, L. B. (2021). *Research Methods for the Behavioral Sciences* (6th ed.). Cengage Learning.

Joan, J. (2020). Teachers' technology integration programs and students' academic achievement in public secondary schools in Ogun State, Nigeria. *International Journal of Education Studies*.

Laurence, A. (2022). Balancing theoretical knowledge and practical skills in secondary education. *Journal of Curriculum Development and Educational Research*, 16(2), 50-66.

Lawal, L. (2024). Teachers' skill acquisition programs and students' academic achievement in public secondary schools in Enugu State, Nigeria. *Journal of Curriculum and Instruction*.

Nani, N. (2023). Influence of teachers' technology integration programs on students' academic achievement in public secondary schools in Abuja, Nigeria. *Journal of Educational Technology and Practice*.

Olanrewaju, T., & Adepoju, K. (2020). Technology integration and instructional effectiveness in secondary schools. *Journal of Educational Technology and Practice*.

Peter, K. (2022). Conceptualizing students' academic achievement in Nigerian secondary schools. *Journal of Contemporary Educational Research*, 5(1), 15-29.

Peter, P. (2021). Teachers' technology integration programs and students' academic achievement in public secondary schools in Kaduna State, Nigeria. *African Journal of Educational Technology*.

Research Advisors. (2006). *Sample Size Table*. The Research Advisors.

States Ministry of Education. (2026). *Statistical Report of Public Secondary Schools in North Central States, Nigeria*. States Ministry of Education.

West African Examinations Council (WAEC). (2025). *States Statistical Report from North Central, Nigeria*. WAEC.

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