



RELATIONSHIP BETWEEN TEACHERS' SUBJECT MASTERY, TEACHING EXPERIENCE AND STUDENTS' ACADEMIC PERFORMANCE IN POST-BASIC SCHOOLS IN ADAMAWA STATE, NIGERIA.

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ABSTRACT

This research sought to explore the connection between teachers' expertise in their subjects, their years of teaching experience, and the academic achievements of students in post-basic schools located in Adamawa State, Nigeria. A correlational research design was employed for this investigation. The study's target population consisted of 391 principals from five educational zones, encompassing 391 Post Basic Schools and 38,499 Senior Secondary School II students in public senior secondary institutions across these zones. The sample size was determined to be 848, which included 78 principals from Post Basic Schools and 770 students, representing 20% of the principals and 2% of the students, respectively. Data collection instruments included the 'Teachers' Subject Mastery and Teaching Experience Questionnaire' (TSMaTEQ) and a proforma for assessing Senior Secondary School II students' termly performance in English Language and Mathematics, referred to as the 'Students' Academic Performance Rating Scale' (SAPRS). The collected data were analysed using descriptive statistics, including mean and standard deviation, to address the research questions, while inferential statistics, specifically regression analysis, were utilized to test the null hypotheses. The study's findings revealed a significant relationship between teachers' subject mastery and students' academic performance in post-basic schools in Adamawa State, with $F(1, 76) = 168.724$, $p < 0.05$, $r\text{-value} = 0.830$, ($R^2 = .689$, Adjusted $R^2 = .685$). Additionally, a significant relationship was found between teachers' teaching experience and academic performance, with $F(1, 76) = 14.999$, $p < .05$, ($r = .406$), ($R^2 = .165$, Adjusted $R^2 = .154$). In summary, this study offers important insights into the factors that affect students' academic performance in post-basic schools in Adamawa State, highlighting the critical roles of teachers' subject mastery and teaching experience in influencing students' educational outcomes. The results highlight the need for educational stakeholders to prioritize and enhance these aspects to create an environment conducive to optimal learning outcomes in post-basic schools. The results suggest that teachers who have a strong command of their subject, and have ample teaching experience, are more likely to positively impact students' academic performance. Based on the findings of the study, the following recommendations were made: The Post Primary School Management Board should implement ongoing professional development programs to enhance teachers' subject mastery. And Government should establish mentorship programs to facilitate knowledge transfer and support for less experienced teachers.

INTRODUCTION

Academic performance refers to students' effectiveness in meeting both short- and long-term educational goals, as well as their skill in certain academic areas (Usman, 2015). For example, a student who earns good marks or awards in science exhibits academic achievement. Furthermore, academic performance reflects educational outcomes, indicating how well students, educators, or educational institutions met their educational goals.

Spinath (2012) observes that academic success is often measured through exams or continuing evaluations. Many factors can influence students' performance in a particular subject or course, including institutional elements, teacher qualifications, instructional resources, the availability of learning facilities, student characteristics, teacher availability, the student-to-teacher ratio, motivation, and gender, among others (Wentzel, 2018).

Teachers' effectiveness is critical for the implementation of educational programs at all levels since they are essential to the educational system's success and play an important part in educational growth. Teachers greatly effect students' academic performance and are vital in reaching educational goals, as they are accountable for converting policies into actionable practices during their interactions with students. The effectiveness of both teaching and learning is contingent upon the competence of teachers (Ayuba, 2022).

A teacher's mastery of the subject matter has a significant impact on their effectiveness and, as a result, students' achievements. Competent educators should be experts in the things they teach; having a teacher who is an authority in their field is like having a useful asset in the classroom. Akram (2019) concluded that teachers' subject expertise is a major predictor of students' academic achievement. To summarize, commitment, topic knowledge, teaching for autonomous learning, and learning management were found to be critical determinants in students' academic achievement. Although it emphasized that teacher effectiveness is an important element in predicting kids' academic performance.

One of the most significant characteristics of a teacher is mastery of relevant knowledge; according to Odiri (2011), a teacher must have a thorough understanding of the subject matter in order to command the respect of his students. Because the frontiers of knowledge are constantly expanding and students' levels are generally rising, a teacher who wishes to remain current in his or her field of specialization should never stop learning. Khan, et al. (2017) claimed that the success of students is directly tied to the effective communication of the teacher.

In contrast, teaching experience refers to how long a person has been actively involved as an educator in the teaching and learning process, which influences students' academic success (Ewetan & Ewetan, 2015). The authors assert that a teacher's experience is evaluated based on their length of service. It is generally accepted that the more years one dedicates to a specific field, such as education, the greater the experience and knowledge acquired, which in turn enhances the productivity and achievement of students in their academic endeavours.

Teachers with less years of experience in the educational area may not be as effective in providing classroom services as more experienced educators (Onyekuru & Ibegbunam, 2013). Various factors have been linked to academic achievement over time, including teacher attitudes, student attitudes, and classroom environment (Usaini, Abubakar, & Bichi 2015; Hattie & Yates, 2014). Academic performance is a major problem in the education system. Unfortunately, the current situation of education in developing countries, particularly Nigeria, casts doubt on the system's credibility, citing evidence of falling academic achievement among students. The disturbing trend of declining academic achievement among pupils in Post-Basic Schools, especially in Nigeria and specifically in Adamawa State, has sparked significant interest among stakeholders in the education sector. Accordingly, this study aims to investigate the relationship between teachers' subject mastery, teaching experience, and students' academic performance in post-basic schools in Adamawa State, Nigeria.

Purpose of the study

Specifically, the study sought to determine the relationship between:

1. Teachers' subject mastery and students' academic performance in post-basic schools in Adamawa State.
2. Teachers' teaching experience and students' academic performance in post-basic schools in Adamawa State.

Research Questions

The following research questions were posed to guide the study;

1. What is the level of teachers' subject mastery in post-basic schools in Adamawa State?
2. What is the level of teachers' teaching experience in post-basic schools in Adamawa State?

Hypotheses

The following null hypotheses were formulated to guide the study and was tested at 0.05 level of significance:

- **HO₁:** There is no significant relationship between teachers' subject mastery and students' academic performance in post-basic schools in Adamawa State.
- **HO₂:** There is no significant relationship between teachers teaching experience and students' academic performance in post-basic schools in Adamawa State.

LITERATURE REVIEW

Scholars have understood and articulated academic performance in a variety of ways. Goshi (2020) defines academic achievement as knowledge acquired and evaluated through grades issued by educators and/or educational objectives defined by both students and teachers to be completed within a specified timeframe. They further stated that these objectives are assessed through ongoing evaluations or examination results. Academic achievement is defined as a student's educational position at a certain moment. In the context of this study, student academic achievement refers to an individual's accomplishments as measured by evaluation methods such as tests, which can be written or spoken. Teachers' Mastery of Subject Matter and Students' Academic Achievement Mastery of relevant knowledge is a critical characteristic of effective teaching.

According to Odiri (2011), in order to earn their students' respect, current instructors must have a thorough mastery of their subject. As the bounds of knowledge increase and students' capacities improve, teachers who want to stay current in their disciplines must engage in lifelong learning. Subject matter knowledge is a factor that can be related to teacher effectiveness. This skill includes the necessary knowledge to ensure educators are well-versed in their disciplines. An successful educator must demonstrate extensive knowledge and teaching skills during class (Liakopoulou, 2011).

Subject Mastery' is the possession or showing of outstanding ability, technique, or knowledge that establishes one as an authority on a subject. Subject mastery denotes the teacher's thorough comprehension of their discipline.

Mastery of a subject provides educators with the knowledge they need for critical thinking as well as the ability to help their students acquire crucial knowledge, skills, attitudes, and values. The importance of subject knowledge in planning teaching activities is widely accepted (Shulman and Shepherd, 2006). According to research, instructors have the greatest impact on student progress. According to Wright and Horn (2013), improving teacher

competence can lead to better education. Competent educators are effective with pupils at all levels of achievement, regardless of individual variances in their classrooms.

Teaching experience combines established abilities, exposure, and training to help instructors perform their current responsibilities more effectively and prepare them for future teaching positions (Oluwakemi, 2015). Oluwakemi (2015) discovered a substantial positive relationship between teachers' teaching experience and students' academic achievement, implying that a teacher's experience can help students succeed. Oluwakemi proposed that more teaching experience correlates with better student academic success; the UNESCO Report (2016) cites teaching experience as a crucial component in improving learner performance. Wandera, Imonje, and Akala (2019) acknowledged teaching experience as a global concern that influences the execution of classroom activities and student performance. A report by Darling-Hammond (2009) indicated that, on average, teachers with over ten years of experience are more effective than those with minimal experience, although they do not outperform those with five years of experience. Akinsolu (2010) also investigated teachers' and students' academic performance in Nigerian secondary schools and its implications for planning found out that teachers' qualification, years of experience and teacher-student ratio were significantly related to students' academic performance.

METHODOLOGY

This study employed a correlational research design. The target population consisted of 391 principals from five educational zones, encompassing 391 Post Basic Schools and 38,499 students in Senior Secondary School II across these zones. The sample size was determined to be 848, which included 78 principals from Post Basic Schools and 770 students, representing 20% of the principals and 2% of the students, respectively. Data collection instruments included the 'Teachers' Subject Mastery and Teaching Experience Questionnaire' (TSMaTEQ) and a proforma for assessing Senior Secondary School II Students' Termly Performance in English Language and Mathematics, referred to as the 'Students' Academic Performance Rating Scale' (SAPRS). The collected data were analysed using descriptive statistics, specifically mean and standard deviation, to address the research questions, while inferential statistics, particularly regression analysis, were employed to test the null hypotheses.

RESULTS AND DISCUSSION

Answering the Research Questions

This chapter presents the data analysis, results and discussion. The interpretation of the data analysis results is presented after the general presentation of the results using the pertinent tables.

Research Questions 1

What is the level of teachers' subject mastery in post-basic schools in Adamawa State?

Table 1: Mean and Standard Deviation of Level of Teachers' Subject Mastery in Post-Basic Schools in Adamawa State

S/N	Item (n = 78)	Mean	S. D	Remark
1	Level at which teacher demonstrates accurate knowledge of the contents he or she wants to teach.	3.41	1.59	ML
2	Level at which teachers links present content with previous learning experiences	4.03	1.54	HL
3	Level at which teachers possess adequate knowledge of the content delivery.	3.73	1.34	HL
4	Level at which teacher's links the content with practical life.	3.92	1.20	HL
5	Level at which teachers familiarized themselves with the subject matter	4.23	1.16	HL
	Grand Mean	3.86	1.37	HL

Table 1 illustrates the average and standard deviation of teachers' subject mastery levels in post-basic schools within Adamawa State, evaluated against several criteria. The average and standard deviation were computed for each criterion. The first criterion, 'To what extent does the teacher exhibit accurate knowledge of the content intended for instruction,' achieved an average score of 3.41 with a standard deviation of 1.59, categorizing it as 'ML' (Moderate Level). This indicates that there is potential for enhancement in teachers' ability to accurately convey their subject knowledge. Conversely, the second criterion, 'To what extent do teachers connect current content with prior learning experiences,' attained a higher average score of 4.03 and a standard deviation of 1.54, reflecting a 'HL' (High Level) of performance. This suggests that teachers in post-basic schools in Adamawa State are proficient in relating current content to students' previous learning experiences. A similar high level of proficiency is noted in the other criteria, including teachers' adequate knowledge of content delivery (mean=3.73, SD=1.34), linking content to real-life applications (mean=3.95, SD=1.19), and their familiarity with the subject matter (mean=4.23, SD=1.16), all classified as 'HL.' The overall grand mean across all criteria is calculated at 3.86 with a standard deviation of 1.37, further confirming the generally high level of teachers' subject mastery in post-basic schools in Adamawa State. While some areas indicate moderate proficiency, the findings suggest a commendable overall standard, demonstrating that teachers are generally skilled at connecting content with prior experiences and effectively delivering subject matter.

Research Questions 2

What is the level of teachers' teaching experience in post-basic schools in Adamawa State?

Table 2: Mean and Standard Deviation of Level of Teachers' Teaching Experience in Post-Basic Schools in Adamawa State

Years of Teaching Experience	Frequency	Percentage (%)
Below 5 years	20	25.6
5-8 years	42	53.8
9-12 years	10	12.8
13-16 years	4	5.1
17-20 years	2	2.6
Total	78	100.0

The data illustrated in Table 2 offers valuable insights into the teaching experience levels of educators in post-basic schools located in Adamawa State. This data categorizes teachers according to their years of experience, presenting both the frequency and percentage distribution for each category. A predominant number of teachers within the sampled schools possess between 5 to 8 years of teaching experience, accounting for 53.8% of the total respondents. Additionally, a notable 25.6% of teachers have less than 5 years of experience. The distribution of experience levels shows a gradual decline as the years of experience increase, with 12.8% having 9 to 12 years, 5.1% with 13 to 16 years, and a mere 2.6% with 17 to 20 years of teaching experience. The total sample size comprises 78 educators, reflecting a thorough representation of the teaching workforce in post-basic schools across Adamawa State.

Testing Hypotheses

Research Hypothesis One:

There is no significant relationship between teachers' subject mastery and students' academic performance in post-basic schools in Adamawa State.

Table 3: Summary of ANOVA of Linear Regression of Relationship between Teachers' Subject Mastery and Students' Academic Performance in Post-Basic Schools in Adamawa State

Model	Sum of Squares	D.f.	Mean Square	F	Sig.
1 Regression	9293.881	1	9293.881	168.724	.000 ^b
Residual	4186.337	76	55.083		
Total	13480.218	77			

a. Dependent Variable: Academic Performance

b. Predictors: (Constant), SUBJECT MATTER MASTERY

Table 3 summarizes the ANOVA of linear regression used to determine whether there is a significant association between teachers' topic competence and pupils' academic achievement in Adamawa State's post-basic schools. The study found a strong correlation between teachers' topic competence and students' academic achievement in Adamawa State's post-basic schools ($F(1, 76) = 168.724, p < 0.05$). The null hypothesis is rejected since the p-value (0.000) is less than the alpha level of 0.05. This indicates that there is a considerable association between teachers' topic mastery and pupils' academic success in Adamawa State's post-basic institutions.

Research Hypothesis Two:

There is no significant relationship between teachers teaching experience and students' academic performance in post-basic schools in Adamawa State.

Table 4: Summary of ANOVA of Linear Regression of Relationship between Teachers' Teaching Experience and Students' Academic Performance in Post-Basic Schools in Adamawa State

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	2221.849	1	2221.849	14.999	.000 ^b
Residual	11258.369	76	148.136		
Total	13480.218	77			

a. Dependent Variable: Academic Performance

b. Predictors: (Constant), TEACHERS EXPERIENCE

Table 4 summarizes the ANOVA and Linear Regression results regarding the link between teachers' teaching experience and students' academic achievement in Adamawa State's post-basic schools. According to the table, the regression model is statistically significant ($F(1, 76) = 14.999, p < 0.05$). The predictor variable (teacher experience) accounts for a significant portion of the variance in the dependent variable (student academic performance).

Findings of the Study

The study's findings are as follows.

1. The study found a significant correlation between teachers' subject mastery and students' academic performance in Adamawa State's post-basic schools ($F(1, 76) = 168.724, p < 0.05, r\text{-value} = 0.830, R^2 = .689, \text{Adjusted } R^2 = .685$).
2. A substantial relationship exists between teachers' teaching experience and academic performance ($F(1, 76) = 14.999, p < 0.05, (r = .406)$).

and ($R^2 = .165$, Adjusted $R^2 = .154$).

DISCUSSIONS OF FINDINGS

The study looked at the association between teacher efficiency and student academic performance in Post-Basic Schools in Adamawa State, Nigeria. The study's findings are detailed below. The study found a substantial association between teachers' topic expertise and pupils' academic achievement in Adamawa State's post-basic institutions. The latest study's discovery of a substantial association between teachers' topic mastery and pupils' academic achievement in post-basic schools in Adamawa State is consistent with previous research efforts. Notably, Blazar's (2016) study in the United States found a favorable relationship between teachers' topic expertise and students' academic achievement, which supports the current finding.

The study also found a substantial association between teachers' teaching experience and academic success. The study's observation of a strong association between teachers' teaching experience and academic performance illuminates an important component of the educational landscape. This study is consistent with previous research indicating that a teacher's breadth of expertise can have a positive impact on student learning. Experienced teachers frequently have a thorough understanding of effective teaching approaches, are better suited to meeting varied learning needs, and may have developed classroom management abilities. This outcome is consistent with educational literature highlighting the importance of experienced educators in creating a favorable learning environment. It implies that investing in the professional development and retention of experienced teachers may contribute positively to overall academic performance, as their wealth of expertise can positively influence the educational journey of their students. The current finding, indicating a significant relationship between teachers' teaching experience and academic performance, aligns with several previous studies. Bamigbade et al. (2015), Bolarinwa et al. (2020), Amie-Ogan & Omunakwe (2020), all reported similar results, emphasizing the positive relationship between teachers' experience and students' academic performance in various Nigerian educational settings.

CONCLUSION

Finally, this study sheds light on the elements that influence students' academic performance in Adamawa State's post-basic institutions. The findings highlight the significance of teachers' topic knowledge, communication skills, teaching experience, and qualifications in determining students' academic outcomes. The findings emphasize the necessity for educational stakeholders to focus and improve these characteristics in order to establish an environment conducive to optimal learning outcomes in post-basic institutions. The findings indicate that teachers with a strong command of their subject and extensive teaching experience are more likely to positively impact students' academic performance.

RECOMMENDATIONS

Based on the results of the investigation, the following recommendations were made:

1. The Post Primary School Management Board should provide ongoing professional development programs for instructors to improve topic mastery. This could include workshops, seminars, and courses designed to help them better grasp the things they teach.
2. Mentorship programs should be established by the government to help new teachers gain knowledge and assistance. Encourage experienced and rookie instructors to collaborate and share excellent teaching practices and classroom management approaches.

REFERENCES

1. Akpan, C. A. A. (2015). Teacher professional development and quality universal basic education in Lagos State, Nigeria. *researchgate.net*.
2. Akram, M. (2019). Relationship between students' perceptions of teacher effectiveness and student achievement at secondary school level. *Bulletin of Education and Research*, 41(2), 93-108
3. Amie-Ogan, O. T., & Eziri, I. N. (2021). Conflict management strategies and teachers' performance in public senior Post-Basic Schools in Port Harcourt Metropolis of Rivers state. *International Research Journal of Education*, 2(3), 67–81. <https://doi.org/10.2483/irje.v02i3.6711735>.)
4. Bamigbade, G. B., Amoo, O. K., Oluwadare, T. A., & Adedokun, J. O. (2015). Teachers' Academic Qualification, Gender and Teaching Experience as Correlate of Students' Academic Performance in Biology in Oyo State, Nigeria. *Research on Humanities and Social Sciences*, 11(9), 19-30.
5. Bolarinwa, D. A., Kolawole, A. O., Ayodele, O. V. Fakunle, A., & Adetule, O. (2020). Teachers' Teaching Experience and Educational Qualification as Correlates of Academic Performance of Students in Public Secondary Schools in Ekiti State, Nigeria. *Journal of Education and Practice*, 11(2), 108-110.
6. Ewetan, O. E. and Ewetan, O. O. (2015). Teachers' teaching experience and academic performance in mathematics and English language in public post-basic schools in Ogun State. *International Journal of Humanities, Social Sciences and Education*, 2(1), 123-134.
7. Goshi, M. S. (2020). Assessing the state of fine and applied arts curriculum in human capacity building in North Eastern Nigeria. *International Letter of Social and Humanities Sciences*, 32, 214-223.
8. Hattie JAC, Yates GCR. (2014) Using feedback to promote learning. In Benssi, V.A., Overson, C.E., & Hakala, C. M. (eds), *Applying the science of learning in education: Infusing psychological science into the curriculum* Washington, DC: American Psychological Association. 2014; 45-58.

9. Khan L, Salahuddin K, Syed Zia-Ul-Islam, & Manzoor Khan (2017). "Communication Skills of a Teacher and Its Role in the Development of the Students' Academic Success." *Journal of Education and Practice*, 1(2), 22-31.
10. Liakopoulou, M. (2011). Teachers' pedagogical competence as a prerequisite for entering the profession. *European Journal of Education*, 46(4), 474–488.
11. Odiri, O. E. (2011). The influence of teachers attitude on students' learning of mathematics in nigerian post-basic schools. *Journal of Research in Education*, 2(1), 15-21.
12. Oluwakemi, T. (2015). Teachers' teaching experience and academic performance in mathematics and english language in public secondary schools in Ogun State, Nigeria. *International Journal of Humanities Social Sciences and Education (IJHSSE)* 2(2), 123-134.
13. Onyekuru, B. U. & Ibegbunam, J. O. (2013). Teaching effectiveness of secondary school teachers in Emohua Local Government Area of Rivers State. *European Scientific Journal*, 9(28), 212-226.
14. Shepherd, D.L. (2006). The impact of teacher subject knowledge on learner performance in South Africa: A within-pupil across-subject approach. Unpublished Report prepared for the Department of Labour project on Scarce and Critical Skills. Pretoria: HSRC Spinath (2012),
15. UNESCO (2015). *Improving School Effectiveness*. Paris France. UNESCO/International Institute for Educational Planning.
16. Usaini, I., Abubakar, N. B. and Bichi, A. B. (2015). Influence of school environment on academic performance of secondary school students in Kuala Terengganu, Malaysia. https://www.researchgate.net/publication/305659360_influence_of_school_environment_on_academic_performance_of_secondary_school_students_in_kuala_terengganu_Malaysia.
17. Usman, C.O. (2015). *The Nigerian educational system, past, present and future*. Lagos: Thomas Nelson Ltd.
18. Usman, Y. D. (2015). The Impact of Instructional Supervision on Academic Performance of Secondary School Students in Nasarawa State, Nigeria. *Journal of Education and Practice*, 6(10), 160–167.
19. Wandera, S.N, Imonje R.K and Akala W.J (2019). "Influence of teaching experience on pupils' performance at Kenya Certificate of Primary Examination in English subject in Kenya." *Journal of Research & Method in Education*, 9(3), 24-30.
20. Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology*, 90, 202–209.
21. Wright, S. P and Horn, S. P. (2013). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education*, 11, 1-9.