



Assessment of Teachers' Academic Qualification and Years of Work Experience as Determinants of Students' Academic Performance

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Abstract

*Agriculture plays a vital role in a country's economy, mainly through exports. To address potential food shortages, it's essential to cultivate interest in agriculture among citizens, especially secondary school students, to shape their future careers. This study investigates the relationship between teachers' qualifications, experience, and students' performance in Agricultural Science. Data was collected from 600 Agricultural Science senior secondary school students and 20 Agricultural Science teachers in Ogbomosho North and South Local Government, using a survey research design and simple random sampling technique. This study utilized two instruments: the first instrument, which collected teachers' demographic information, was developed by the researcher with assistance from other experts and underwent face validity assessment. The second instrument, the Agricultural Achievement Test, was adopted from Adegoke's work in 2012. The estimated reliability coefficient on AAT was 0.9531. Results indicate that 55.0% of sampled teachers hold higher degrees, while 40.0% have a first-degree/PGDE. Additionally, 75.0% of teachers possess over 10 years of experience, and 25.0% have just 10 years of experience. Student performance on the teacher-made test varied, with 44.7% scoring between 70-100 marks. A strong positive correlation exists between teacher qualifications (.832**) and experience (.484**) with student performance, indicating both factors positively influence academic outcomes. The findings suggest that both academic qualification and years of work experience have a positive correlation with student academic performance, with academic qualification showing a stronger correlation. Additionally, there's a positive correlation between academic qualifications and years of work experience.*

Keywords: Competence, Education, Industry, Production, Raw Material

Introduction

Agricultural science involves the use of scientific methods and processes to improve farming practices, which encompass the production, distribution, and processing of food, fiber, and pharmaceuticals (Noll 2015; Olmstead and Rhode 2008). The agricultural sector is a vital part of a nation's economic activity, providing resources, economic advancements, and employment opportunities. It is a significant source of income for the country, and the government should focus on exporting more agricultural goods to increase trading capacity abroad.

In the educational system, academic performance is the primary focus, and it is the yardstick by which institutions are judged to be successful or unsuccessful. Academic performance refers to the learning objective that a student, instructor, or institution must accomplish within a specific time. It is measured through exams or ongoing evaluations. Research has shown that academic achievement and academic anxiety have a significant negative relationship (Murthy and Kulshreshta, 1999). Students' personalities,



intelligence, environments, and other characteristics, as well as teachers' qualifications and years of experience, all impact an individual's academic achievement.

Studies have examined the connection between instructors' backgrounds and students' academic achievement. Teachers' academic credentials, including their degree of education, subject-matter competence, and professional growth, play a crucial role in determining students' academic success. Research has shown that a teacher's educational background has a significant impact on their students' academic achievement (Darling-Hammond, 2012). Higher education credentials have been linked to better learning outcomes for students (Hansek and Rivkin, 2018). Educators who possess advanced degrees and specialized training in their respective fields demonstrate greater productivity in the classroom and are capable of offering students valuable learning experiences.

To stay current with best practices in pedagogy and subject-specific instruction, teachers need to pursue ongoing professional development. Improved academic performance results from teachers who participate in ongoing professional development, such as getting higher certifications or attending specialized training programs (Darling-Hammond, 2021). Hattie (2020) meta-analysis demonstrated that the subject-matter competence of teachers had a major impact on student accomplishment. Instructors with subject-matter expertise, often attained through graduate degrees or specialized training, are better equipped to explain difficult ideas and encourage student engagement.

A variety of studies have explored the connection between the number of years teachers have been in the profession and the academic success of their students. Evidence indicates that teachers who have less than three years of experience typically achieve lower levels of success compared to their more experienced counterparts (Ronfeldt *et al*, 2013). After approximately five years, the advantages of job experience seem to plateau, particularly in non-collegial work environments. However, some studies have found that more experienced educators are more effective in the classroom and can provide students with better learning experiences.

The educational qualification of teachers is essential in forming students' minds and transmitting knowledge. A teacher with a higher education is likely to comprehend the subject matter better and be more effective in communicating difficult ideas to students. Research has shown that when teachers possess advanced academic skills, students perform better (Andrew and Schwab, 1995). A student's academic achievement can be greatly impacted by years of work experience. More experienced educators are likely to have stronger classroom management strategies, more effective teaching methods, and a deeper understanding of how to modify their approaches to meet the needs of their students.

This study seeks to investigate the influence of teachers' academic qualifications and years of work experience on students' academic performance in agricultural science. The study aims to fill the gap in the literature and provide insights into the impact of teachers' qualifications and experience on students' academic achievement in agricultural science.

Research Questions

1. What are the teachers' academic qualifications?
2. What are the teachers' years of work experience?
3. What is the level of students' performance in Agricultural Science?
4. How do teachers' academic qualifications and years of work experience influence students' academic performance?



Materials and Methods

Research Design

This study adopted a survey research design. This is because no variable was manipulated in the study.

Population

The target population for the study comprises Senior Secondary School S.S.S. 2 Students in Ogbomoso North Local Government. The reason for choosing the subjects is that they were free from the pressure of external examinations.

Sampling Technique and Sample

A multi-stage sampling method was employed to select a sample for this study. A stratified sampling approach was utilized to categorize the secondary schools in Ogbomoso North and South into groups (public and private). Ogbomoso North local government comprises fifteen public secondary schools, while Ogbomoso South has sixteen public secondary schools. A simple random sampling method was employed to choose 10 public secondary schools from each of the two local governments, resulting in a total of twenty schools. A purposive sampling approach was utilized to select Senior Secondary School S.S.S. 2 students, as they are not under examination stress. Additionally, a simple random sampling technique was applied to select thirty (30) S.S.S. 2 students enrolled in Agricultural Science from each of the chosen schools. This resulted in a total of six hundred (600) students participating in the study. Similarly, a simple random sampling method was used to select one S.S.S. 2 Agricultural Science teacher from each of the sampled schools, culminating in a total of twenty (20) teachers.

Instrumentation

Two instruments were used for this study: The first instrument contained teachers' demographic data (TD); this elicited information from the teachers about the class taught, academic qualifications, and years of work experience. The second instrument was the Agricultural Achievement Test (AAT). This contained 20 objective test items adopted by the researcher. These were drawn from the topics indicated in the school scheme of works and diaries in Agricultural Science.

Validity and Reliability of the Instruments

The first instrument, TD, was prepared by the researcher with the help of other experts, and it was subjected to face validity, while AAT was adopted from Adegoke (2012). The estimated reliability coefficient on AAT was 0.9531. This shows that the instrument is reliable and possesses high internal consistency for measuring the Cognitive achievement of Senior Secondary Two Students in Agricultural Science. R square (R) estimated was 0.9084, which implies that 90.84% variation in Senior Secondary School (SSS) 2 Cognitive Achievement scores in Agricultural science, was due to actual difference while 9.16% observed difference was traceable to error variance (other factors that can cause error variation) in the cognitive achievement of SSS 2 students.

Data Collection and Analysis

After collecting the teachers' demographic information and achievement tests, the researcher and the research assistants matched the students' scores with their respective teachers' demographics.

The data collected with the two instruments used for the study were coded and stored in SPSS software version 26 for analysis. The statistical tools used for the analysis are: Descriptive Statistics, Pearson Product-Moment Correlation Coefficient, and Multiple Regression



Results

Research Question 1: What is the percentage of Teachers' academic qualifications?

Table 1: Teachers' Academic Qualifications

	N	Percentage
Valid NCE	3	15
Degree/PGDE	8	40
Master Degree	6	30
PhD	3	15
Total	20	100

Table 1 presents the teachers' academic qualifications in Agricultural science. From the table, 40.0% of the sampled agricultural science teachers were Degree/PGDE holders, which accounted for two-fifths of the entire sample. Holders of a Master's degree constituted 30.0% while each of NCE and Ph.D. holders made 15.0% of the teachers. This implies that the majority of the secondary school teachers (55.0%) had higher degrees. Whereas, the highest qualification to teach in secondary school is a first degree.

Research Question 2: What is the percentage of Teachers' years of work experience?

Table 2: Teachers' Years of Work Experience

	N	Percentage
1-10 Years	5	25
11-20 Years	9	45
21-30 Years	4	20
31 + Years	2	10
Total	20	100

Table 2 presents the teachers' years of work experience in teaching Agricultural science. Of the teachers, 75.0% have spent more than 10 years on the job, while 25.0% have about less than ten because it is 1-10 years on the job, which was believed to have a positive influence on the students' academic performance.

Research Question 3: What is the percentage of Students' performance in Agricultural science?

Table 3: Student Academic Performance in Agricultural Science

	N	Percentage
1-39 Marks	6	1.0
40-44 Marks	16	2.7
45-49 Marks	37	6.2
50-54 Marks	46	7.7
55-59 Marks	58	9.7
60-69 Marks	168	28.0
70-100 Marks	269	44.7
Total	600	100



Table 3 presents students' academic performance in Agricultural science. From the table majority of the students scored higher score ranges: 44.7% of the students performed exceptionally by scoring between 70-100 marks in the Agricultural science achievement test, 28.0% of the students scored between 60-69 marks, 9.7% scored between 55-59 marks, 7.7% scored 50-54 marks, 6.2% scored 45-45 marks, 2.7% scored 40.44 marks while 1.0% performed woefully by scoring between 1-39 marks, This implies that the marks and performance of the students were evenly distributed among the brilliants, average and the below average students.

Research Question 4: How do Teachers' academic qualifications and years of work experience interact to influence students' academic performance?

Table 4: Correlation between Teachers' Academic Qualifications and Students' Academic Performance

	Teachers' Academic Qualifications	Students' Academic Performance
Teachers' Academic Qualifications	1	.832**
Students' Academic Performance	.832**	1

**Correlation is significant at the 0.01 level (2-tailed).

Table 4 presents the relationship between Teachers' Academic Qualifications and Students' Academic Performance. The correlation coefficient between Academic Qualification and Student Academic Performance is (0.832, $p < 0.01$). This also indicates a strong positive correlation. It suggests that higher academic qualification tends to be associated with better student academic performance.

Table 5: Correlation between Years of Work Experience and Students' Academic Performance

	Years of Work Experience	Students' Academic Performance
Years of Work Experience	1	.484*
Students' Academic Performance	.484*	1

*Correlation is significant at the 0.05 level (2-tailed).

Table 5 presents the relationship between Years of Work Experience and Students' Academic Performance. The correlation coefficient between Years of Work Experience and Student Academic Performance is 0.484 ($p < 0.05$). This indicates a moderate positive correlation. It suggests that as years of work experience increase, student academic performance tends to improve, but not as strongly as the correlation between academic qualification and student academic performance.

Overall, the table suggests that both Teachers' Academic Qualifications and Years of Work Experience have a positive correlation with Student Academic Performance.

Discussions

The data suggests that a significant portion of teachers have advanced qualifications, which positively impacts the educational environment. The majority of teachers also have substantial experience. The results show that teachers' academic qualifications improve students' academic performance, with



higher qualifications leading to better student outcomes. This supports the idea that investing in education enhances student performance. Studies by Oredein (2008), Hanushek & Rivkin (2018), and Andrew and Schwab (1995) also found that teachers with advanced degrees and specialized training are linked to higher student achievement.

The results also reveal that teachers' years of work experience significantly affect students' academic performance. This is in line with a report by Ronfeldt, *et al* (2013), which found a positive correlation between teachers' experience and student outcomes. However, some studies suggest that the benefits of work experience plateau after around five years. Less experienced teachers (those with less than three years of experience) tend to be less successful than more experienced teachers (Schwab and Andrew, 1995).

As teachers accumulate more work experience, students' academic performance tends to improve. This relationship can be attributed to the development of critical thinking, time management, and practical knowledge gained through experience. The finding suggests that investing in teacher education and experience can have a positive impact on student achievement.

Conclusion

In conclusion, the presented results provide a profound perspective on the interplay between teachers' academic qualifications, years of work experience, and students' academic performance in Agricultural Science. While a significant portion of teachers' hold advanced degrees and have accumulated years of experience, the observed positive correlations with student performance suggest a strong and significant relationship.

The findings indicate that a higher academic qualification and increased years of work experience translate to improved student outcomes.

Implications

These findings have implications for institutions, policymakers, and employers. They highlight the importance of higher education, experiential learning, and internships in enhancing academic performance. Employers should consider academic qualifications and work experience as complementary indicators of employee potential and suitability for roles, promoting a more holistic approach to hiring.

Recommendations

Further research is needed to develop deeper into the factors influencing the observed correlations. Professional development programs for teachers could focus on maintaining a balance between career growth and effective teaching practices.

The study underscores the importance of a holistic perspective in shaping educational strategies to enhance student outcomes in Agricultural Science.

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