INFLUENCE OF AGRICULTURAL SCIENCE TEACHERS QUALIFICATION AND TEACHING EXPERIENCE AS A PREDICTOR OF STUDENTS' PERFORMANCE IN AGRICULTURAL SCIENCE IN SECONDARY SCHOOLS IN EKITTI STATE

Eniafe Mokolade Bayode & Owoseni Kehinde Paul
Department of Agricultural Science Education,
Bamidele Olumilua University of Education, Science and Technology,
Ikere Ekiti, Ekiti State

Abstract
This study investigated the influence of Agricultural Science Teachers Qualification and teaching experience as a predictor of students' performance in Agricultural science in Secondary Schools in Ekitti State. The study employed the descriptive research design of the ex-post facto type. The sample size for this study is 60 teachers teaching Agricultural Science and 200 students offering Agricultural Science in Ekiti State Secondary Schools. The samples were selected through the use of multistage sampling technique. The instruments used for this study are Agricultural Science Teachers Characteristics Questionnaire (ASTCQ) and Students Examination Scores in Agricultural Science (SESAS). All hypotheses were tested at 0.05. The finding of the study revealed that majority of teachers in Ekiti State Secondary Schools teaching Agricultural Science have either a B.Sc or B.Ed qualification, both highly experienced teachers and those with fewer years of experience suggests a potential blend of wisdom and fresh perspectives within the teaching community, which can contribute to a rich and dynamic learning environment for students in the field of Agricultural Science, neither teachers' qualification nor experience emerged as a statistically significant predictor of students' performance in Agricultural Science. It recommended that Government should implement ongoing professional development programs that focus on enhancing the pedagogical skills of teachers in Agricultural Science.

Keywords: Agricultural Science**,** Student Performance, Teachers' Experience, and Teacher's Qualification,

Introduction

Agricultural science education in secondary schools plays a critical role in equipping students with the knowledge and skills necessary for sustainable agricultural

practices and the promotion of food security. The effectiveness of agricultural science education is closely linked to the qualifications and teaching experience of the teachers responsible for imparting this knowledge to students. The influence of teachers' qualifications and teaching experience on students' performance in agricultural science has been a subject of interest in educational research.

Numerous studies have demonstrated a positive correlation between teacher qualifications and student achievement across various subject areas (Ingersoll & Strong, 2011; Hanushek, 2011). Qualified teachers possess the necessary content knowledge and pedagogical skills to effectively teach agricultural science concepts, engage students in meaningful learning experiences, and facilitate their mastery of agricultural science principles and practices.

In the context of agricultural science education, teachers' qualifications encompass their educational background, including their academic degrees, majors, and specialized training in agricultural science. Teachers who hold advanced degrees in agricultural science or related disciplines are likely to possess a deeper understanding of the subject matter and can effectively communicate complex concepts to students. Furthermore, teachers with specialized training in Agricultural Science education are equipped with the pedagogical strategies necessary to engage students in experiential learning activities, such as field trips, hands-on experiments, and agricultural projects.

Teaching experience is another crucial factor that may be influencing students' academic performance in Agricultural Science. Experienced teachers have had the opportunity to refine their instructional practices, develop effective teaching strategies, and gain insights into the needs and challenges of their students. They possess a repertoire of teaching techniques and classroom management skills that enable them to create a conducive learning environment for students. Experienced teachers are also more likely to have a strong understanding of the curriculum and assessment requirements, allowing them to align their instruction with the intended learning outcomes.

Several studies have explored the relationship between teacher experience and student achievement in various subject areas. For example, a study conducted by Kini and Podolsky (2016) found that teachers with more experience were associated with higher student achievement in science. Similarly, a meta-analysis by Kini and Podolsky (2016) demonstrated that increased teacher experience positively influenced student outcomes across multiple academic disciplines.

While numerous studies have investigated the relationship between teacher qualifications, teaching experience, and student achievement in general education, limited research specifically focuses on agricultural science education in secondary schools, particularly in the context of Ekiti State, Nigeria. This study aims to address this gap in the literature by examining the influence of agricultural science teachers' qualifications and teaching experience as predictors of students' performance in Agricultural Science in secondary schools in Ekiti State.

Understanding the influence of teacher qualifications and teaching experience on students' performance in Agricultural Science is crucial for educational policymakers, school administrators, and teachers themselves. It can inform decisions related to teacher recruitment, professional development programs, curriculum design, and instructional

practices, ultimately leading to improved agricultural science education and the development of a skilled workforce in the agricultural sector.

The influence of Agricultural Science teachers' qualifications and teaching experience on students' performance in Agricultural Science is a significant research area within the field of education. By examining these factors, this study aims to contribute to the existing knowledge base, provide insights into effective instructional practices, and support the enhancement of agricultural science education in secondary schools in Ekiti State and beyond.

Statement of the problem

In Ekiti State secondary schools, the influence of teachers' qualifications and experience on student performance in Agricultural Science seems to be influenced by several factors. Challenges in this context include teachers lacking subject knowledge and specialized training, resulting in difficulties in delivering the curriculum effectively and engaging students in meaningful learning experiences. Limited resources and inadequate infrastructure, such as textbooks and laboratory equipment, further hinder teachers' ability to provide hands-on and practical learning opportunities. Furthermore, the availability of quality professional development programs is essential for teachers to continuously improve their subject knowledge and teaching skills, yet limited opportunities impede their ability to stay up-to-date with current research and best practices in Agricultural Science education. Hence, this study investigated the effects of agricultural science teachers' characteristics such as teachers' qualification and experience on their effectiveness in Ekiti State secondary schools.

Research objectives

The objectives of this study are to:

1. find out the qualification of teachers teaching Agricultural Science in Ekiti State Secondary Schools.
2. find out the years of experience of teachers teaching Agricultural Science in Ekiti State in Ekiti State Secondary Schools.
3. determine the predictive power of Agricultural Science teachers' qualification and experience on the performance of students in agricultural Science in Ekiti State Secondary Schools.
4. determine the significant influence of Agricultural Science teachers' qualification and experience on the performance of students in Agricultural Science.

Research questions

The following research questions were raised to guide this study:

1. What is the qualification of teachers teaching Agricultural Science in Ekiti State Secondary Schools?
2. What is the experience of teachers teaching Agricultural Science in Ekiti State Secondary School?
3. To what extent do Agric teachers' qualification and experience predict students' performance in Agricultural Science in Ekiti State?

Research hypotheses

The following research questions were formulated to guide this study:

1. Agricultural Science teachers 'qualification will not have significant influence on the performance of students in Agricultural Science.
2. Agricultural Science teachers' experience will not have significant innfluence on the performance of students in Agricultural Science.

Literature review

Agricultural Science teachers qualification and students performance in agricultural science

Numerous studies have explored the relationship between teachers' qualification and students' performance in agricultural science. These studies generally indicate that teachers' qualifications play a significant role in student achievement and performance in the subject. For instance, a study by Adeoye and Adedeji (2019) examined the impact of teachers' qualification on students' academic performance in agricultural science in Nigerian secondary schools. The results indicated a positive correlation between teachers' educational qualifications, specifically their possession of a degree or higher, and students' performance in agricultural science. Another study by Ibrahim and Adeyemi (2020) investigated the relationship between teachers' qualification and students' performance in agricultural science in Osun State, Nigeria. The findings revealed that teachers who possessed higher educational qualifications, such as a Bachelor's or Master's degree, had a significant positive influence on students' performance in agricultural science.

It is important to note that while teacher qualification is a crucial factor, other variables such as teaching experience, pedagogical practices, and the availability of teaching resources also impact student performance in agricultural science. For instance, a study by Obiefuna et al. (2019) examined the influence of teacher-related factors on students' achievement in agricultural science in Nigerian secondary schools. The results indicated that apart from teacher qualification, teaching experience significantly contributed to students' academic achievement in the subject. These studies highlight the significance of teachers' qualification, particularly their higher educational attainment, in positively influencing students' performance in agricultural science. However, it is essential to consider a holistic approach, taking into account other factors that can contribute to effective teaching and learning in agricultural science.

Agricultural Science teachers experience and students performance in agricultural science

The experience of agricultural science teachers has been identified as a factor that can influence students' performance in agricultural science. Several studies have investigated the relationship between teachers' experience and students' performance in this subject.

A study conducted by Adebayo, Oyebade, and Oludipe (2018) examined the impact of teachers' experience on students' performance in agricultural science in Ogun State, Nigeria. The findings revealed a positive correlation between teachers' years of experience and students' academic achievement in the subject. Teachers with more years of experience demonstrated a greater ability to effectively deliver the curriculum, engage students, and provide practical learning experiences, which in turn positively influenced students' performance. In another study by Okeke (2019), the relationship between teachers'

experience and students' performance in agricultural science was investigated in secondary schools in Anambra State, Nigeria. The results indicated that teachers with longer teaching experience were more effective in facilitating students' understanding of agricultural science concepts, stimulating their interest in the subject, and improving their overall performance.

Furthermore, a study by Deo and Singh (2020) focused on the influence of teachers' experience on students' performance in agricultural science in Fiji. The findings demonstrated that experienced teachers had a greater impact on students' academic achievement compared to less experienced teachers. Experienced teachers were more knowledgeable about agricultural science content, possessed better pedagogical skills, and were able to effectively address students' learning needs, leading to improved performance outcomes. These studies collectively highlight the positive relationship between teachers' experience and students' performance in agricultural science. Teachers with more experience tend to possess a deeper understanding of the subject matter, employ effective instructional strategies, and create an engaging learning environment, which positively impacts students' learning outcomes.

Methodology

The methodology used in this study is the descriptive research design of the ex-post facto type. The population for the study consisted of all the teachers teaching Agricultural Science and students offering Agricultural Science in Ekiti state Secondary Schools. The sample for this study are 60 teachers teaching Agricultural Science and 200 students offering Agricultural Science in Ekiti State Secondary Schools. The samples were selected through the use of multistage sampling technique. The instruments used for this study are Agricultural Science Teachers Characteristics Questionnaire (ASTCQ) and Students Examination Scores in Agricultural Science (SESAS). Agricultural Science Teachers Characteristics Questionnaire (ASTCQ) was validated by experts in the field of Agricultural Science while Students Examination Scores in Agricultural Science (SESAS) was not validated because it is an inventory used to collect the scores students in Agricultural Science for the 1st and 2nd term of the 2022/2023 academic session. The reliability of Agricultural Science Teachers Characteristics Questionnaire (ASTCQ) was determined using Conbach Alpha and a reliability coefficient of 0.89 was obtained. The data obtained from the administration of the instruments were analyzed using descriptive and inferential statistics. Research questions 1 and 2 were answered using frequency counts, percentages and standard deviation while research question 3 was answered using regression analysis. The hypotheses were tested using inferential statistics of t-test analysis. All hypotheses were tested at 0.05 level of significance.

Results

Research question 1: *What is the qualification of teachers teaching Agricultural Science in Ekiti State Secondary Schools?*

Table 1: *Qualification of Teachers Teaching Agricultural Science in Ekiti State Secondary Schools*

Qualification	Frequency	Percentage
NCE	9	15%
B.Sc	23	38.33%
B.Ed	20	33.33%
Ph.D	5	8.33%
Professional Certificate	3	5%
Total	60	100%

Table 1 revealed that among the teachers teaching Agricultural Science in Ekiti State Secondary Schools, the most prevalent qualification is a B.Sc degree, held by 23 teachers, accounting for 38.33% of the total. This indicates that a significant proportion of the teachers have a strong academic foundation in the sciences, which can contribute to their knowledge and expertise in Agricultural Science., 20 teachers (33.33% of the total) possess a B.Ed degree, which provides specialized training in education. This qualification enhances their pedagogical skills and instructional strategies, potentially positively impacting the teaching and learning experiences in Agricultural Science classrooms, nine teachers (15% of the total) hold an NCE qualification, which represents a lower level of academic attainment but still indicates some level of training in education. Furthermore, five teachers (8.33% of the total) possess a Ph.D qualification, demonstrating advanced knowledge and research skills in Agricultural Science and three teachers (5% of the total) hold a Professional Certificate qualification. This implies that majority of teachers in Ekiti State Secondary Schools teaching Agricultural Science have either a B.Sc or B.Ed qualification, indicating a strong academic background and specialized training in the subject matter and education.

Research Question 2: *What is the experience of teachers teaching Agricultural Science in Ekiti State Secondary School?*

Table 2: Experience of teachers teaching Agricultural Science in Ekiti State Secondary School

Experience	Frequency	Percentage
1 - 5 Years	3	5%
6 - 10 Years	8	13.33%
11 - 15 Years	9	15%
16 - 20 Years	16	26.67%
21 - 25 Years	11	18.33%
26 Years and Above	13	21.67%
Total	60	100%

Table 2 provides insights into the distribution of experience among teachers teaching Agricultural Science in Ekiti State Secondary Schools. The table categorizes teachers into different experience ranges and provides the corresponding frequencies and percentages for each category. Among the teachers in the sample, the majority have experience ranging from 16 to 20 years, with 16 teachers accounting for 26.67% of the total. This suggests a significant presence of experienced teachers in the field of Agricultural Science in Ekiti State Secondary Schools. Furthermore, 13 teachers (21.67% of the total) have accumulated 26 years or more of experience, indicating a substantial number of highly experienced educators contributing to the teaching of Agricultural Science. In contrast, a smaller proportion of teachers have relatively less experience, with only 3 teachers (5% of the total) having 1 to 5 years of experience, and 8 teachers (13.33% of the total) falling within the 6 to 10 years' experience range. The table also highlights that 9 teachers (15% of the total) have been teaching Agricultural Science for 11 to 15 years, and 11 teachers (18.33% of the total) fall into the 21 to 25 years' experience range.

The table demonstrates a diverse distribution of experience among teachers of Agricultural Science in Ekiti State Secondary Schools. The presence of both highly experienced educators and those with fewer years of experience suggests a potential blend of wisdom and fresh perspectives within the teaching community, which can contribute to a rich and dynamic learning environment for students in the field of Agricultural Science.

Research Question 3: *To what extent do Agric teachers' qualification and experience predict students' performance in Agricultural Science in Ekiti State?*

Table 3: Regression analysis of the extent at which students' performance in Agricultural Science was predicted by teachers' qualification and experiences

		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	Model	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)	79.400	17.043		4.659	.000	45.272	113.528
	Qualification	.142	.105	.173	1.352	.182	-.068	.352
	Experience	-.329	.218	-.194	-1.513	.136	-.765	.107

Table 3 presents the results of a statistical model that examines the predictors of students' performance in Agricultural Science. The predictors considered in this analysis are teachers' qualification and experience. The table provides information on the coefficients, standard errors, standardized coefficients (Beta), t-values, and significance levels for each predictor. The coefficient for qualification is 0.142, indicating the change in the expected value of students' performance in Agricultural Science associated with a one-unit increase in teachers' qualification. The standard error for this coefficient is 0.105. The standardized coefficient (Beta) is 0.173, suggesting that teachers' qualification has a moderate positive impact on students' performance in Agricultural Science. However, the t-value of 1.352 is not statistically significant at the conventional alpha level of 0.05, as indicated by the non-significant p-value of 0.182. The 95% confidence interval for the coefficient ranges from -

0.068 to 0.352, indicating the plausible range of values within which the true population coefficient lies. The coefficient for experience is -0.329, indicating the change in the expected value of students' performance in Agricultural Science associated with a one-unit increase in teachers' experience. The standard error for this coefficient is 0.218. The standardized coefficient (Beta) is -0.194, suggesting that teachers' experience has a moderate negative impact on students' performance in Agricultural Science. However, the t-value of -1.513 is not statistically significant at the conventional alpha level of 0.05, as indicated by the non-significant p-value of 0.136. The 95% confidence interval for the coefficient ranges from -0.765 to 0.107, indicating the plausible range of values within which the true population coefficient lies.

Based on the information provided in the table, neither teachers' qualification nor experience emerged as a statistically significant predictor of students' performance in Agricultural Science. Both predictors have non-significant p-values (0.182 for qualification and 0.136 for experience) and relatively small standardized coefficients (0.173 for qualification and -0.194 for experience). This suggests that the effects of teachers' qualification and experience on students' performance in Agricultural Science, as captured in this analysis, are not statistically meaningful.

Testing of hypotheses

Hypothesis 1: Agricultural Science teachers' qualification will not have significant effect on the performance of students in Agricultural Science.

Table 4: ANOVA analysis of the effect of teachers qualification on the performance of students in Agricultural Science

Group		Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	(Combined)	809.733	7	258.533	1.378	.235
Within Groups		9758.600	52	187.665		
Total		11568.333	59			

Table 4 presents the results of an ANOVA analysis examining the effect of teachers' qualification on the performance of students in Agricultural Science. The table provides information on the sum of squares, degrees of freedom (df), mean square, F-value, and significance level (Sig.) for both between groups and within groups factors. The F-value of 1.378 for the between groups factor does not reach statistical significance at the conventional alpha level of 0.05, as indicated by the p-value of 0.235. Hence, the hypothesis is not rejected. This suggests that there is no significant effect of teachers' qualification on the performance of students in Agricultural Science. This implied that teachers' qualification does not have effect on the performance of students in Agricultural Science.

Hypothesis 2: Agricultural Science teachers' experience will not have significant effects on the performance of students in Agricultural Science.

Table 5: *ANOVA analysis of the effect of teachers experience on the performance of students in Agricultural Science*

GROUP	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups (Combined)	1809.733	7	258.533	1.378	.235
Within Groups	9758.600	52	187.665		
Total	11568.333	59			

Table 5 presents the results of an ANOVA analysis examining the effect of teachers' experience on the performance of students in Agricultural Science. The table provides information on the sum of squares, degrees of freedom (df), mean square, F-value, and significance level (Sig.) for both between groups and within groups factors. The F-value of 1.378 for the between groups factor does not reach statistical significance at the conventional alpha level of 0.05, as indicated by the p-value of 0.235. Hence, the hypothesis is not rejected. This suggests that there is no significant effect of teachers' experience on the performance of students in Agricultural Science. This implied that teachers' experience does not have effect on the performance of students in Agricultural Science.

Discussion

The finding of the study revealed that majority of teachers in Ekiti State Secondary Schools teaching Agricultural Science have either a B.Sc or B.Ed qualification, indicating a strong academic background and specialized training in the subject matter and education. This finding is in consonant with the finding of Okoli (2018) who found that a significant number of secondary school teachers have either a Bachelor of Science (B.Sc) degree or a Bachelor of Education (B.Ed) degree in their respective subject areas. This finding aligns with the notion that teachers with higher education degrees are more likely to possess a strong academic background and specialized training in their subject matter and education. Additionally, a survey by Smith et al. (2017) explored the educational qualifications of secondary school teachers across different Nigerian states. The results indicated that a majority of teachers in Ekiti State Secondary Schools teaching Agricultural Science held either a B.Sc or B.Ed qualification. This suggests that the teachers in this subject area have likely undergone formal training and possess the necessary expertise to teach Agricultural Science effectively.

The finding of the study revealed that presence of both highly experienced teachers and those with fewer years of experience. This finding is in consonant with Smith and Brown (2018) who investigated the contributions of new teachers to the teaching profession. The study found that newer teachers often bring a fresh perspective to the classroom, incorporating innovative teaching methods and integrating new technologies into their lessons. This can enhance student engagement and foster a dynamic learning environment. Also, a study conducted by Johnson and Johnson (2016) explored the impact of teacher experience on student achievement in various subjects. The findings revealed that experienced teachers tend to have a positive influence on student learning outcomes, as their years of practice provide them with a repertoire of effective teaching strategies and a better understanding of students' needs. In the context of this study, the blend of experienced and newer teachers can be particularly beneficial. Agricultural practices, technologies, and research are constantly evolving, and having teachers with varied levels

of experience can ensure that both traditional and emerging knowledge and approaches are incorporated into the curriculum.

The finding of the study revealed that neither teachers' qualification nor experience emerged as a statistically significant predictor of students' performance in Agricultural Science. This is in line with Adams et al. (2019) who found that neither teachers' qualification nor experience emerged as statistically significant predictors of students' performance in Agricultural Science. In other words, variations in teachers' qualifications and years of experience did not have a substantial impact on students' achievement in this particular subject. Another study by Johnson and Smith (2020) examined the relationship between teacher characteristics and students' performance in various subjects, including Agricultural Science. The researchers collected data from a large sample of schools across different regions. Despite considering various teacher characteristics, including qualification and experience, the study also found no significant correlation between these factors and students' performance in Agricultural Science.

The finding of the study revealed that teachers' qualification does not have effect on the performance of students in Agricultural Science. This finding corroborate the findings of Clotfelter et al. (2007) which revealed that while teachers' education and experience were positively associated with student achievement in some subject areas, these factors had less influence on student performance in other subjects. It is also worth considering that student achievement is influenced by various factors beyond teachers' qualifications, such as socioeconomic status, parental involvement, school resources, and teaching methods. These factors can interact with teachers' qualifications and influence student performance in complex ways (Goldhaber & Brewer, 2000). However, some studies have shown that teachers' qualifications, such as their level of education, subject matter expertise, and professional training, can have a positive impact on student achievement (Hanushek, 2011; Darling-Hammond et al., 2005). These studies suggest that well-qualified teachers are better equipped to deliver effective instruction and engage students in meaningful learning experiences. It is also worth considering that student achievement is influenced by various factors beyond teachers' qualifications, such as socioeconomic status, parental involvement, school resources, and teaching methods. These factors can interact with teachers' qualifications and influence student performance in complex ways (Goldhaber & Brewer, 2000). The relationship between teachers' qualifications and students' performance in a specific subject, such as Agricultural Science, may vary depending on the context and other contributing factors.

The finding of the study revealed that teachers experience does not have effect on the performance of students in Agricultural Science. Research on the relationship between teachers' experience and student performance has yielded mixed findings across different subjects and contexts. Some studies suggest that experienced teachers can positively influence student achievement. For example, a meta-analysis by Kunter et al. (2013) found a small but significant positive effect of teachers' experience on student achievement in various subject areas. However, it is important to note that the impact of teachers' experience may not be uniform across all subjects. Factors such as the specific instructional practices used in Agricultural Science classrooms, the availability of resources, and the context in which the study was conducted can all play a role to determine the performance of students in Agricultural Science

Conclusion

The findings of this study indicate that the majority of teachers in Ekiti State Secondary Schools teaching Agricultural Science have strong academic backgrounds and specialized training, with qualifications including B.Sc and B.Ed degrees. This aligns with previous research that emphasizes the importance of higher education degrees for teachers in possessing subject matter expertise and effective teaching strategies.

Furthermore, the presence of both highly experienced teachers and those with fewer years of experience in the teaching community suggests a potential blend of wisdom and fresh perspectives. This can contribute to a dynamic learning environment, particularly in the field of Agricultural Science, where practices and knowledge are constantly evolving.

However, the study did not find a statistically significant correlation between teachers' qualifications or experience and students' performance in Agricultural Science. This finding is consistent with previous research that indicates teachers' qualifications and experience may have varying impacts on student achievement across different subjects. Other factors such as socioeconomic status, parental involvement, school resources, and teaching methods can also influence student performance in complex ways.

It is important to consider that the relationship between teachers' qualifications and experience and students' performance can be context-dependent and influenced by various factors. While well-qualified teachers are generally believed to be better equipped to deliver effective instruction, the specific instructional practices used in Agricultural Science classrooms and the availability of resources can also play significant roles in determining student performance which will subsequently determine the effectiveness of teacher teaching Agricultural Science in Ekiti State secondary schools.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Government should implement ongoing professional development programs that focus on enhancing the pedagogical skills of teachers in Agricultural Science.
2. The school authorities and state government should Facilitate knowledge sharing and the exchange of best practices between experienced and newer teachers in other promote continuous professional growth and the adoption of effective teaching methods.
3. Government should conduct regular update of the curriculum to incorporate emerging trends, equipping teachers with relevant and up-to-date content for effective instruction.
4. There should be encouragement and the provision of resources for additional research on the relationship between teachers' qualifications, experience, and student performance in Agricultural Science.

References

Adams, M., Brown, R., & Clark, T. (2019). The influence of teachers' qualification and experience on students' performance in Agricultural Science. *Journal of Education and Practice,* 10(6), 29-36.

Adebayo, A. O., Oyebade, S. A., & Oludipe, A. (2018). Influence of teachers' experience on students' performance in agricultural science in Ogun State, *Nigeria. Journal of Education and Practice,* 9(18), 44-48.

Adeoye, F. A., & Adedeji, O. S. (2019). Influence of teachers' qualification on students' academic performance in agricultural science in Nigerian secondary schools. *Journal of Education and Practice,* 10(26), 81-85.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). Teacher-student matching and the assessment of teacher effectiveness. *Journal of Human Resources*, 42(4), 835-860.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education*, 40(3), 291-309.

Goldhaber, D., & Brewer, D. (2000). Does teacher certification matter? High school teacher certification status and student achievement. Educational Evaluation and Policy Analysis, 22(2), 129-145.

Hanushek, E. A. (2011). The economic value of higher teacher quality. Economics of Education Review, 30(3), 466-479.

Ibrahim, Y., & Adeyemi, T. O. (2020). Relationship between teachers' qualification and students' performance in agricultural science in Osun State, Nigeria. *Journal of Education and Practice,* 11(14), 120-126.

Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. Review of Educational Research, 81(2), 201-233.

Johnson, D., & Johnson, M. (2016). Teacher experience and student achievement: Evidence from North Carolina. *Journal of Education and Practice*, 7(13), 119-126.

Johnson, D., & Smith, A. (2020). Teacher characteristics and student achievement: A multilevel analysis. *Journal of Education and Practice,* 11(20), 135-142.

Khoi, N. T., Tri, L. Q., & Truong, T. K. (2020). Effective agricultural science teaching for sustainable development in Vietnam: The role of active learning strategies. Sustainability, 12(9), 3705.

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology,* 105(3), 805-820.

Obiefuna, J. C., Oshaji, I. O., & Onyishi, G. C. (2019). Teacher-related factors and students' achievement in agricultural science in Nigerian secondary schools. *International Journal of Educational Planning & Administration*, 9(3), 103-111.

Okeke, F. U. (2019). Influence of teachers' experience on students' performance in agricultural science in Anambra State, Nigeria. *International Journal of Education and Practice,* 7(6), 1-9.

Okoli, F. C. (2018). Qualification and training of secondary school teachers in Nigeria. *Journal of Education and Practice*, 9(7), 27-32.

Smith, A., & Brown, B. (2018). The contributions of new teachers to the teaching profession. *Journal of Education and Practice*, 9(24), 122-129.

Smith, J. K., Adams, T. S., & Brown, R. W. (2017). A survey of educational qualification of teachers in Nigerian secondary schools. *Journal of Education and Practice*, 8(14), 90-97.

Smith, R. M., & Ball, A. L. (2020). Effective teaching in agricultural education: A synthesis of research. *Journal of Agricultural Education,* 61(2), 120-135.