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Relationship between Teachers' Academic Qualifications and Students' Achievement in Agriculture in Junior Secondary Schools, Yola-North, Adamawa State, Nigeria

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Abstract

Junior Secondary education in Nigeria is an important tier in the hierarchy of education system in the country. It is the halfway between primary and senior secondary schools which last for three academic years. The purpose of this study was to find the relationship between teachers' academic qualifications and students' academic achievement in Agriculture in junior secondary schools in Yola North, Adamawa state, Nigeria. The study was guided by human capital theory developed by Theodore Schultz and Gary Becker. The study adopted a quantitative research approach positioned in the post-positivism worldview and employed a cross-sectional descriptive survey research design. The study sample was 437, comprising of 80 teachers and 357 students of junior secondary schools. Closed ended Questionnaires were used to collect data from the teachers and the students, whereas document analysis was used to review documents on academic scores of the students in the Basic Education Certificates Examination from 2018-2022. Data analysis was carried out using both descriptive and inferential statistics. Mean and Spearman rank order were used for the analysis. Content, construct, and face validity of the instruments were tested and reliability was measured using Cronbach's alpha. The findings revealed that there was no significant relationship between teachers' academic qualifications and students' achievement in Agriculture (r=0.07, p =.05). Therefore, it was concluded that, increase in teachers' qualifications beyond certain level has no strong correlation with students' academic achievement in Agriculture. It was recommended that the government should give priority to teachers with NCE qualification during recruitment, organize teachers' professional development programs, establish a comprehensive monitoring and evaluation system, review teaching practices, course content, and assessment strategies, implementation of performance-based-incentives for teachers. The findings of this study are hoped to benefit employers of labour, the Ministry of Education, teachers, students, and parents who constitute the major stakeholders in education.

Keywords: Teachers, *Academic Qualifications, Academic achievement, Agriculture, Students, Teachers,*

1.0 Introduction

Junior Secondary education in Nigeria is an important tier in the hierarchy of education system in the country. It is the halfway between primary and senior secondary schools which last for three academic years. It is the form of education that students receive after their primary education and

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or before their senior secondary (high) school. It is intended for students' ages from 12-15. This level of Education is the budding blocks for future professionals as well as the determinant for the national prosperity. Traced back to colonial Era to post independence, Nigeria education system had enjoyed a number of changes and improvement in line with the educational policies. Similarly, the teacher training system was also restructured and re-organised to mirror changes at the primary, secondary and tertiary education levels. Examples of this was the elimination of teacher training programs lower than Grade II Training Colleges. The establishment of Advanced Teacher Training Colleges (ATTC), afterwards renamed Colleges of Education, came out with a middle-level teaching program. They trained and produced teachers with the Nigerian Certificate in Education (NCE), while universities produced graduate teachers through an innovative programme first started by the University of Nigeria, Nsukka, in 1961. This involved taking professional education classes and teaching subjects concurrently. It gradually replaced the consecutive system whereby a prospective graduate teacher first obtained a degree in a subject, and then spent another full year in an Institute of Education for the Post-graduate Diploma in Education (PGDE). Although, both approaches are still used to produce skilled graduate teachers, but the concurrent program is more widely used (Ejiogu & Ajeyalemi, 2000).

Success in school is related to social background elements, according to Ohanyelu, C.N, (2022), because these characteristics have a significant impact on early children's cognitive abilities. Some studies indicates that children from lower socioeconomic backgrounds enter school with significantly lower cognitive abilities than their counterpart from higher socioeconomic backgrounds. Home environments have generally shown to be the best starting point for fostering children's academic achievement; yet academic achievement is frequently a result of the motivation that children acquire when interacting with individuals in their early years of life. It is also obvious that students from privileged backgrounds had higher test scores on average and in comparison, to those from lower-income families, as multiple research studies have established a connection between parental characteristics and students' achievement with no doubt that the student's home environment is an agency that facilitates the development of a student's attitude and academic achievement.

1.1 Problem Statement

The National Policy on Education (2004) stipulates that the minimum qualification for teaching in Nigeria is the Nigeria Certificate in Education (N.C.E) (Ademola et al., 2022). Despite this provision, the quality of secondary education in Nigeria continues to decline, posing challenges to principals, teachers, and students who are central to the quality assurance system.

Evidence from Adamawa State reveals that students' academic achievement remains significantly below the national average. Uzoma and Uboh (2020), in their analysis of state performance in the West African Examination Council (WAEC), reported that North-Eastern states, including Adamawa consistently record poor results, with Adamawa ranked 27th out of 36 states and a mean score of 29.24%.

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This persistent low achievement, particularly in Agriculture, and students' inability to meet higher education entry requirements highlight a critical gap in understanding the factors influencing academic performance, thereby justifying the need for this study.

1.2 Objectives of the Study

The main objective of the study was to examine the relationship between teacher's academic qualifications and students' academic achievement in agriculture in Junior Secondary schools in Yola North, Adamawa State, Nigeria.

1.3 Research hypothesis

Ho: There is no statistically significant relationship between teachers' academic qualification and students' academic achievement in Agriculture in Junior Secondary Schools in Yola North, Adamawa state, Nigeria.

1.4 Theoretical framework

This study adopted human capital theory developed by Theodore Schultz (1961), Gary Becker (1964) and Jacob Mincer (1974). The notion becomes more well-known and prevalent in literature thanks to Gary Becker (1964). Kolomiiets, (2017) modified the theory to investigate how the human capital concept emerged and became popular in the United States to think about education and policy. According to Webb et al. (2018), Human capital, is a term that describes a person's knowledge, skills, and abilities in addition to other innate qualities. One of the most important types of human capital is formal education. As a result, the idea of human capital includes both the definitions of education as a resource (i.e., human capital) and as a system (where the building up takes place). T. Schultz, one of the theory's founders, explains that human talents can either be inherited or learned as pointed out by Mayilyan and Yedigaryan, (2022). Natural abilities are determined by the unique gene combinations that each person is born with. Human capital refers to desirable traits a person has gained that can be strengthened because of investments and training. Teachers especially in the Agricultural field must be specially trained and well equipped to become professionals in their fields. According to Rothomi, (2023), the theory of human capital is based on the presumptions that people are not just resources but also capital that will provide a return on every investment made in order to increase the quality and quantity of capital. This is relevant to the current study because the government is investing a significant amount of resources into improving the calibre of educators and the educational system by hosting workshops, webinars, and providing scholarships to improve the quality of teachers especially in the field of Agriculture to meet the rising demand of the society. These expenditures serve as a capital investment with the expectation of a return in the form of improved academic achievement among students. A person's abilities and expertise inside an organisation are always linked to their human capital. The idea of "human capital" ought to be viewed as a link defining the connection between human resource management techniques and operational effectiveness. Like how Collins Randall's book of credentialism describes how teachers' experience, education, and degree of learning were used to define their productivity in the classroom. Similar to physical capital, intellectual capital, according to Bouchard et al., (2008), can be obtained through education or experience and kept by

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ongoing educational training. It can then provide rewards in the form of productivity and, possibly, the owner's wealth. But unlike other types of capital, human capital is inert from its owner, such as the experience, knowledge that teachers possess to enable them make changes in the life of their students and the worth of that person's capital is solely based on his or her ability to use their knowledge in a financially successful venture (Bouchard et al., 2008).

2.0 Literature Review.

2.1 Students' academic achievement

Academic achievement is complex from the point that it is conceptualized. Although it is sometimes referred to as school performance, academic achievement, and preparedness for school, and the differences between these terms are typically only understood by their similarities in meaning. It is an accepted practice to use school performance in populations receiving traditional and alternative basic education and or in placement evaluation, while academic achievement in university populations and or summative evaluation (Lamas, 2015). Achievement has various facets and is influenced by a variety of factors, such as organizational dedication and work ideals. Achievement has been heavily sought throughout the history of education, both from teachers and students, as a measure of production. However, if teachers are unable to provide evidence of their effective performance in the form of students' achievement scores, the requirement for reaching academic goals would remain unanswered while academic success during the teaching process is, by far, the most crucial metric (Iqbal et al., 2016).

According to several authors, academic achievement is the end product of learning, which is stimulated by the teacher's teaching activity and created by the student. School grades have been utilised as a performance standard from a psychological perspective, and they have been linked to various cognitive, behavioural, and self-control factors. In Nigeria for example, the degeneration and frequently declining of student academic achievement in public secondary schools in Agriculture has raised serious alarm and concerned in the education sector. According to the Association for Educational Assessment in Africa (AEAA), Nigeria has an awful failure rate for pupils in public exams, especially at the secondary school level of education in Agricultural science (Aina & State, 2014). The low percentage of applicants who meet the prerequisites for university admission reflects the large percentage of candidates who fail WASSCE each year. According to the National Head Office, West African Examinations Council (WAEC), the causes of widespread failure in WAEC can be linked to some candidates' inexperience of common errors, along with insufficient coverage of the syllabus and unfamiliarity with test format. A state based analysis by Uzoma and Uboh, (2020) revealed that the North-eastern part of Nigeria comprising of Taraba, Adamawa, Gombe, Bauchi, Yobe and Borno states were among those that constantly report cases of high level of poor student academic achievement in Agriculture in secondary schools during external examinations. There is no doubt that student academic achievement in secondary schools has direct bearing to teachers, the students, parents, government, school environment, and socio-economic factor. Each of these has a great role to play in raising students test scores.

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According to Aina and State, (2014), stakeholders kept exchanging blame for the reasons why so many students fail public exams, with teachers receiving the largest portion of the blame. Other blame-shifters include the government, parents, society, and students themselves. The fact is that all parties involved have a responsibility to play in resolving the issue of widespread student failure in public examinations in Agriculture. Notwithstanding, there is an ongoing accusations and denials about who is to blame. Nevertheless, to offer long-lasting answers, it is necessary to pinpoint the main sources of the issue. The purpose of this study was to determine the relationship between teachers' academic qualifications and students' academic achievement in Agriculture in junior secondary schools in Yola-North, Adamawa state, Nigeria.

2.2 Teachers academic qualifications

A significant step toward improving the quality of teachers' initial education and ongoing professional development throughout their careers in Nigeria is a product of the National Teacher Education Policy. Organisations all over the world have attempted to rely on the enhanced competencies, expertise, and capabilities of the skilled workforce to gain a competitive edge. To develop employees' explicit and implicit knowledge, skills, and capacities and turn them into an organization's valuable resource, academic qualification or educational training is a crucial function for an organisation (Huang, 2020). For example, in an educational institution, one of the important and core consideration to put in place when raising student test score is the teacher and teacher characteristics since teachers have been shown to have high value added in the classroom.
Secondary school students' academic achievement as explain by Laghari and Gopang, (2022) is significantly impacted by the teachers' strong academic and professional qualifications. In Europe, current governmental interest in teacher education aims to raise teachers' educational levels from Bachelor to Master, lengthen the programme on average not less than four years, establish transparent selection processes, emphasise pertinent subject matter, and strengthen the connection with practise. This goal is in line with the regional teachers' union's vision, which holds that changes to length, quality, cost, and level are necessary for effective teacher preparation (ETUCE, 2014). For example, UNESCO Bangkok Office (2015), revealed that most East Asian educational systems that rank highly in large-scale international examinations train their teachers using concurrent and subsequent paths that place a focus on subject-matter knowledge acquisition.

The 8th congress of the Africa Federation of Teaching Regulatory Authorities (AFTRA), (2019) recently adopted a suggestion that emphasises the need for all governments to set basic standards for teaching. According to research by the Association for the Development of Education in Africa, education ministries should support alternative career paths, especially through in-service training initiatives aimed at certifying current contract and volunteer teachers.

The ability to become a registered teacher in a primary or secondary school can be attained through a variety of academic and professional degrees, according to Abe, (2014). Among these qualifications is the postgraduate degree in Education (PGDE), which includes also the Nigeria Certificate in Education (NCE), Professional Diploma in Education (PDE), and Bachelor of Education (B.Ed.) both academically qualified and professionally qualified teachers are employed to carry out the teaching process in Nigeria. In senior secondary schools, however, only graduates are permitted to teach (Kola & Sunday, 2015). The effectiveness of a teacher is evaluated using a

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variety of metrics. According to Bonney et al., (2015) each teacher quality index offers an exclusive indicator of teacher value determined by a larger number of teacher quality factors, including experience, licencing status, academic competence, and even school stability. Although the accuracy of objective indicators of teacher quality, such as certification status, preparation quality, and teacher stability, in identifying teachers' efficiency in raising student achievement, is still up for question.

3.0 Materials and Methods

This study adopted a quantitative research approach using a cross-sectional descriptive survey research design during which data was collected at one point in time. Cross-sectional designs are used by survey researchers to gather information on existing attitudes, views, or ideas from the research participants (Creswell, 2014). The study targeted 21 Junior Secondary Schools in Yola North Local Government Area of Adamawa State, Nigeria, with a population of 7,929 students and 857 teachers. To determine the sample size for student scores, the researcher referred to the table of sample sizes for a random probability sample developed by Cohen et al. (2017). This was done using a 95% confidence level with a 5% margin of error. According to Cohen et al. (2017), the sample size for the study with a population of 2802 at 95% confidence level with 5% margin of error was 357 students. A sample of 80 teachers with difference academic qualifications were also selected for the study. This was done using the table of sample size selection for categorical variable at alpha = 0.05 developed by Bartlett et al. (2001). The sample size for the study was selected using probability sampling techniques to ensure representativeness of the sample. The techniques in the Probability sampling method that were used in the study were simple random and stratified sampling techniques.

Table 1 Summary of the Sampling Framework

Categories	Population	Sample size	Sampling technique
State	*6*	1	Simple Random
Schools	*21*	6	Simple Random
Teachers	146	80	Stratified/ Simple Random
Students	2802	357	Simple random
Total	**2975**	**444**	

The study employed structured questionnaire to collect data on the influence of teachers' academic qualifications, on students' academic achievement in Agriculture. A closed-ended questions were structured in a way that the respondents selects an answer from a given number of options. The responses were then scored using a 5-point Likert scale, with options ranging from Strongly Disagree to Strongly Agree with corresponding scores of 1 to 5, accordingly. The researcher also adopted document analysis to collect quantitative data on students' academic achievement in the selected junior secondary schools from 2018 to 2022. The documents that were analysed for the study includes records containing students' scores in Agriculture in Basic education certificates examination for five years from 2018 to 2022.

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To determine how well the instruments appear to measure what they were designed to measure, face validity was utilized. The face validity of the study was established by subjecting the instruments to an expert for scrutiny and comments on the adequacy of the items and logical arrangement. The researcher also checked the content validity to determine whether the instrument covers all the contents it was intended to measure. To measure the reliability coefficient in this study, the internal consistency of the instruments was measured using Cronbach's alpha which was more robust. In this study a Cronbach's Alpha value of .884 was obtained which indicates that the items were closely related and had a higher level of reliability index.

The study strictly adhered to ethical principles underscoring the conduct of good research in all stages of the study, starting with obtaining a permit from the university and seeking permission from the Adamawa State Ministry of Education, through the post primary school management Board, as well as any other body of concern, especially the principals of the selected schools where the study was conducted. The researcher issued an introductory letter explaining the purpose of the study and the anticipated benefits that may accrue from it to the principals and teachers in the sampled schools prior to data collection. Participants were informed about any dangers associated with the study. Participants were also given consent form to sign to enable them to reserve the right to participate in the study or not and to withdraw from the study at any point in time when they deem it necessary. The researcher also made it publicly known to the participants that any information provided during the process of data collection will be treated with a high level of confidentiality and anonymity, including personally identifiable information (PII). The researcher ensured this by not collecting any personally identifying information, using pseudonyms, destroying other data collection evidence, using code names, and storing the data safely for limited access by unauthorized individuals according to data protection regulations. Any information provided for the study were only used for the purpose of this research and no further processes that are incompatible with the underlined objectives of the study.

4.0 Results and Discussion

The main objective of the study was to examine the relationship between teacher's academic qualifications and students' academic achievement in agriculture in Junior Secondary schools. Before analysis, the researcher coded and input the data into SPSS version 25. The data were then sorted, scored, and cleaned to identify missing values, typos, and scoring errors. The chapter presents descriptive and inferential statistics to answer the research questions and test hypotheses respectively.

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Table 2 Descriptive statistics for students' academic achievements in Agriculture from document analysed for five years (2018 to 2022)

School	N	MEAN	STD
Gwadabawa	48	2.71	1.09
Yelwa	92	3.86	0.72
Rumde	80	3.31	0.85
Doubeli	51	3.46	0.67
Luggere	40	2.92	1.11
Damilu	46	2.68	0.72

Table 2 above presents the mean scores for student academic achievement Agriculture in the six schools for five years. The mean scores for the schools vary significantly, with Yelwa (3.86) having the highest while Damilu (2.68) having the lowest score. The standard deviations show how evenly or unevenly the scores are distributed throughout each school.

The standard deviations of Gwadabawa and Luggere were the largest (1.09 and 1.11, respectively), indicating that the student scores in these schools were more heterogeneous or that there is a greater variability of scores. On the other hand, Doubeli had the lowest standard deviation (0.67), indicating a more homogeneous distribution of scores among its students. Yelwa stands out as the school with the highest mean score and the second-lowest standard deviation, suggesting a relatively strong and consistent academic achievement among its students. In contrast, Damilu had the lowest mean score, which indicates a lower overall academic achievement, but its standard deviation is the third-lowest, implying a more homogeneous student achievement. The other schools fall in between these extremes, with varying degrees of mean scores and standard deviations, reflecting different academic profiles and student populations.

Table 3 Spearman Correlation Analysis between teachers' qualifications and student academic achievement in Agriculture.

	Student's academic achievement	
	Rho	Sig
Teachers' qualifications	.066	.771

The Spearman rank correlation was used to analyse the relationship between teachers' academic qualification and student academic achievement in Agriculture in six junior secondary schools for a period of five years from 2018 to 2022. Based on the result obtained from the analysis, a very weak positive relationship between teachers' academic qualifications and students' academic achievement was obtained with rho= .066 and p= .771. Therefore, the p (.771) > .05. This indicates

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that the relationships between teachers' academic qualifications and students' academic achievement in agriculture is not statistically significant. This findings is in agreement with the findings of Musau and Migosi, (2015), who revealed that teacher qualifications have little to no impact on how well children perform in science classes and suggest that other factors, such as the teachers' professional development, which may result in their pleasure and make them more committed to their jobs may also boost student performance. This means that an increase in teachers' academic qualification does not significantly increase in students' achievement in Agriculture.

Read (2018) is also with the opinion that general skills, academic qualifications, expertise in the field, and years of work experience do not show correspondence with the successes of the students, despite the efforts of some American scholars to investigate the factors defining good and bad teachers. on the contrary, a study of Curriculum and Management, (2015) refutes the findings of the present study and found that teachers with more advanced degrees are more effective and demonstrated a stronger correlation to student success than teachers who have lower academic qualifications in Kenya. Secondary school students' academic achievement as explain by Laghari and Gopang, (2022) is significantly impacted by the teachers' strong academic and professional qualifications. In Europe, current governmental interest in teacher education aims to raise teachers' educational levels from Bachelor to Master, lengthen the programme on average not less than four years, establish transparent selection processes, emphasise pertinent subject matter, and strengthen the connection with practise. This goal is in line with the regional teachers' union's vision, which holds that changes to length, quality, cost, and level are necessary for effective teacher preparation (ETUCE, 2014).

In summary, the level of student academic achievement in agriculture (from 2018 to 2022) in junior secondary schools, Yola North, Adamawa State, Nigeria. Mean and standard deviation were used to compute the analysis based on individual student scores in Basic Education certificate examination from 2018 to 2022. It is well established that the highest students' achievement was recorded in GDJSS Yelwa with a mean value of 3.861, while GDJSS Damilu had the least mean score (2.678). Reference to the threshold that a mean score of 0.00–1.9 = poor academic achievement; 2.0 – 2.9 = Fair, 3.0-3.49 = Good, 3.5 – 4.49 = Very Good, and 4.5 – 5.0 = Excellent. Therefore, students' achievement in GDJSS Yelwa with a mean value of 3.861, GDJSS Doubeli (3.458), and GDJSS Rumde (3.313), were considered to be above average and good, while the achievement in GDJSS Luggere (2.914), GDJSS Gwadabawa (2.711), and GDJSS Damilu (2.678) were considered to be fair. This shows that there is a variation in student achievement in Agriculture across the schools despite common exams. The standard deviation also ranges from .28868 to 1.78885 which indicates the extent to which the data points deviate away from the mean value.

5.0 Conclusion and recommendation

The main objective of the study was to analyse the relationship between teachers' academic qualification and student academic achievement in Agriculture in Yola North, Adamawa state, Nigeria. Spearman rank correlation was used to investigate the nature, direction and strength of the

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relationship. The result obtained from the analysis revealed that the relationship between teachers' qualifications and students' achievement in Agriculture were statistically significant and as such increase in teachers' qualifications has no significant effect on students' academic achievement in agriculture.

6.0 Recommendations

During recruitment of teachers, government should give more priority to candidates who possessed the Nigeria certificate in education (NCE) as evidence has proved that these categories of teachers are more effective in raising student test scores. Students taught by these teachers tend to have high mean score than their counterpart who were taught by teachers with other qualifications. The Government should also give a strict adherence to the national policy on education on issue relating to the minimum requirement in term of qualification for teaching in junior secondary schools in Nigeria. However, it is very unfortunate that in some schools for example, it was clear that some teachers were found to teach different subjects other than their area of specializations which will also contribute to students' failure. Periodically, the government through the ministry of education should cultivate the habits of organizing on-the-job-training programs or professional development courses for teachers such as seminars, webinars, conference, workshops etc. Sometimes changes in curriculum also affects teachers' professionalism. However, on the job training programs such as conference, seminars etc. serve as a mechanism to keep teachers up to date and in the right tract.

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Conflict of Interest

Regarding the publication of this work, the authors declare that they have no conflicts of interest. The research presented in this paper was not influenced by any financial or personal ties.

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