



INFLUENCE OF SOME TEACHERS' VARIABLES ON ACADEMIC ACHIEVEMENT IN BIOLOGY AMONG SECONDARY SCHOOL GIRLS IN IBADAN NORTH LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

Olabode Opeoluwa Oluwatoyin¹, Awolola Oluwatoyin Isaiah²

and Dr. Awusah Ikechukwu Benedictus³

¹National Open University of Nigeria
opeoluwadami@gmail.com

²Emmanuel Alayande College of Education

³National Open University of Nigeria
lykeawisah@gmail.com

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ABSTRACT: Introduction: Education is an aspect among a few that instills an essential expertise, capabilities as well as knowledge between persons; this then leads to total evolution and advancement of the entities, community and the entire country as a whole. An individual who is formally instructed is not only simply capable of achieving sought after goals and intents; on the other hand, it is also able to give a proficient support towards the comfort of the community. This study assessed the influence of teachers' variable on academic achievement in biology among secondary school girls in Ibadan North Local Government Area, Oyo State, Nigeria. **Methodology:** A descriptive survey research design was used and multi-stage sampling procedure was employed to select the 20 teachers who participated in the study. Ten public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria were randomly selected. A self-designed instrument titled: Teachers' Variable on Academic Achievement in Biology Questionnaire was analyzed. Two research questions were answered; percentage, Pearson moment correlation analysis and multiple regression analysis were used to test the two hypotheses at 0.05 level of significance. **Results:** There was no significant relationship between teachers' academic qualification and academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State ($r = 0.412$; $df=18$; $p>0.05$). Furthermore, with respect to teachers' teaching experience and the academic achievement, there was no significant relationship ($r=0.324$; $df=18$; $p>0.05$). Consequently, the connection between teachers' academic qualifications did not correlate with academic achievement among secondary school girls offering biology. **Recommendations:** The study recommended that the state government should prioritize teachers' educational qualification in biology in public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria. Also, students should be motivated in order to improve their attitude towards biology as a subject.

KEYWORDS: Teachers' variables, Teachers' academic qualifications, Academic achievement, Biology, Secondary school girls.



INTRODUCTION

Education is an aspect among a few that instills an essential expertise, capabilities as well as knowledge between persons; this then leads to total evolution and advancement of the entities, community and the entire country as a whole. An individual who is formally instructed is not only simply capable of achieving sought after goals and intents; on the other hand, they are also able to give a proficient support towards the comfort of the community. Learning and academic performance can be improved through the impression of educational knowledge, capacity to do well, proficiencies and know-how amongst the students (Kapur, 2018). One of the aims of teaching is to train persons to restructure their world and eradicate inequity. Societal approaches are relieved when the purpose is achieved; individuals are modelled to perform better in their surroundings (Boit, Njoki & Chang'ach, 2012; Bamigbade, Amoo, Oluwadare & Adedokun, 2021).

Teachers' Qualification (TQ) involves the rudimentary teaching assimilated by a teacher and this will assist an individual to practice as a teacher in the teaching profession, while qualification is defined as a distinct ability or sort of knowledge or experience that helps a person to be suitable in the process of carrying out a certain job or tasks. Consequently, a teachers' qualification is a distinct ability, skill or sort of experience or knowledge an individual retains that makes them fit to teach. A teacher's qualification in another way can also be viewed as a teacher's certification (Aina & Olanipekun, 2015). Another researcher affirmed that the process of achieving teacher qualifications which integrates parts of knowledge on the area of subject matter about teaching and learning can be summarized as certification (Gaji, 2014). The researcher emphasized this opinion by affirming that certification is a way of achieving teacher qualifications, which integrate parts of knowledge on the area of the subject matter about teaching and learning. Furthermore, Rice (2003) in Vagi, Pivovarova and Barnard (2019) gave a definition of teacher certification as the old-fashioned key control instrument for the teaching profession. The researcher further explained that the specific criterion for certification differs from one nation to another. Conversely, an account of the accomplishment of a qualified and official teacher education programme, teaching practice, and a formal approval from an academic institution of higher education should all be taken into consideration. From the Nigerian perspective, according to the National Policy on Education (FRN, 2014), the least and approved qualification for admittance into the teaching profession is the Nigerian Certificate of Education (NCE).

Meanwhile, biology as a subject is being offered by science and arts students at the same time because of its imperative nature and its relevance at the senior secondary school level. Students unfortunately perform below par in biology examinations. Research has not been able to pinpoint explanations for poor performance and process core individual peculiarities in learning (Okoye, 2016).

An important teachers' characteristic that influences students' academic performance is teaching experience. Cuttance (2012) in Ada (2015) defined teaching experience as the total number of years teachers spend in the teaching job. Teaching experience is the knowledge, skills, experience and technique that a teacher gains through many years of service. Teachers with long years of experience on the job are bound to be more knowledgeable in their specialized areas. This is buttressed by the popular saying that practice makes perfect; these specialized areas include their teaching subjects and education philosophies or theories. With these, there is no hesitation that more experienced teachers are likely to be more fruitful or



effective, thereby resulting in a better academic performance of their students. Ahon, Obi and Ikwen (2014) and Ada (2020) posited that a teacher may be academically or professionally qualified but may lack the experience on the job, good relationship with students and communication skills to be able to perform well. In addition, it was further stated that experience increases teachers' effectiveness but then experience was only one of the factors contributing to the effectiveness of the teacher.

Terrence and Peters (2010) in Kiamba and Mutua (2017) further explained academic achievement or performance to be one of the results of teaching and learning. Academic achievement can be defined as the degree to which the educational goals are realized by the student, teacher, or an institution. It is normally measured through examinations or continuous assessment, though agreement was not reached on which aspect of achievement is more important, or how it can be verified (Stop & Smith, 2013; Kiamba & Mutua, 2017). Likewise, there are manifold levels in measuring academic achievement and they work for different purposes. They include the teacher administering formative and summative tests in order for the learner's thorough knowledge of subject content to be evaluated with the overall aim to assign ratings to students and their parents (Kiamba & Mutua, 2017).

Objective

The main purpose of this study is to assess the influence of teachers' variable on academic achievement in biology among secondary school girls in Ibadan North Local Government Area, Oyo State, Nigeria.

REVIEW OF RELATED LITERATURE

Teachers' Educational Qualification versus Students' Academic Achievement in Biology among Secondary School Girls

A study was conducted by Ada (2020) which investigated teachers variables and learning outcome of students with physical and health impairment in selected secondary schools in Obudu Local Government Area of Cross River State, in which Teacher Variables and Learning Outcome of Students with Physical and Health Impairment Questionnaire (TVLOSPHIQ) was developed and administered to 240 respondents from 55 public secondary schools in the study area, using the cluster and simple random sampling techniques. The researcher also made use of the survey design method. Analysis of the data and test of the hypotheses were done using Pearson Product Moment Correlation Analysis and One-way Analysis of Variable (ANOVA) Statistics. The study revealed educational qualification significantly relates with the learning outcome of students with physical and health impairment in school, that is, the higher the teachers' educational qualification, the higher and better the learning outcome of students with physical and health impairment in school.

A study conducted by Filgona and Sakiyo (2020) determined the extent to which academic qualification of teachers influences the students' attitude and academic achievement in geography in some selected secondary schools in Adamawa State. Geography Teachers' Qualification Checklist (GTQC), Students' Attitudinal Scale in Geography (SASIG) and Geography Achievement Test (GAT) were developed and administered to 400 teachers and students respectively. A multistage sampling technique was used to arrive at the sample size,



while a predictive correlational design was employed. The regression statistic revealed that students' academic achievement was predicted by teachers' qualifications, and the predictive value was significant.

Recently, most of the educationists and the general public are getting more bothered about the poor learning outcome of students with physical and health impairment in secondary schools, in the internal and external examinations in physical and health education (Dada, Ikwen & Edem, 2015). Efforts also have been made to bring about improvement in the classroom and even in the sporting field, which often takes account of provision and use of variety of instructional materials as well as the employment of some specific techniques. All too often, the purpose of these is to support the professional growth of the education and always think of the immediate task of the teachers as they face the students in the class (Ikwen & Igba, 2016). Thus, teachers' qualification is a very strong and powerful single factor that must first be achieved before their sense of self and method of teaching the subject influence learning outcome of students.

Morakinyo (2016) in Ada (2020) considered that the deteriorating level of academic achievement is attributed to teachers' non-use of verbal strengthening strategy, while others found out that the attitude of poor attendance to lessons and carrying out of sporting activities, not being punctual to school, unpleasant remarks about students' performance that can affect their self-worth and poor technique of teaching the subject affect learning outcome of students. The show of interest in the area of teachers' qualification is not surprising because, in every nation, children's development is a very strong factor in policy making (Ikwen, Nkebe & James, 2018), Nigeria is not an exception to this assertion. It is generally believed that effective education of our children will go a long way in ensuring a better future. This can only be apprehended through having in our educational system teachers that are professionally qualified. The achievement of any teaching and learning process which unvaryingly impacts students' learning outcome in subjects is based on how effective and efficient the teachers are (Ikwen & Igba, 2017). Teachers, who are the people in charge of teaching and applying educational policies aimed at attaining educational objectives, cannot be ignored if the educational goals as well as national development goals are to be attained. Irrespective of how good an educational policy may be on papers, it may possibly fail to accomplish its preferred goals if not accurately implemented by teachers who occupy the center stage in influencing academic performance of students in the subject area (Ikwen, Unimke & James, 2018).

The Federal Ministry of Education (2014) in conjunction with the teachers council of Nigeria have categorized individuals with the following certificates and degrees as those professionally qualified to teach in our primary and secondary school system as a teacher: T.C.II, N.C.E, DIP. ED, B. ED, S. A (ED), B.Sc. (ED), PGDE and M. ED. This means that a teacher whose qualification and certificate is not in the field of education above is not a qualified teacher. Monsoon (2001) in Ada (2020) theorized that quality "output" demands the quality "input". This is true with respect to the school system because professionally qualified teachers are bound to bring about good and quality students in terms of academic achievement in the subject area. Also, Raj (2014) in Ada (2020) opined that in any given educational system, students will learn best where there are professionally qualified teachers to effect interaction all through the process of teaching and learning any subject. Students' general poor learning outcome in our secondary school system especially in the Senior School Certificate Examination (SSCE) has been a thing of concern to the general public, schools, parents and the government itself; these



unwanted situations have often been attributed to many factors operating within the school system and the home.

One of the factors within the school settings is the nature of teachers in terms of qualification, experience and commitment in the subject area. Regarding teachers' qualification, our secondary school system today have many teachers who are graduates in various subject areas in education. These categories of teachers are often said to be lacking in some explicit professional requirement for the effective teaching of their subject specialty (Ikwen, 2000; Ada, 2020). Thus, professionally qualified teachers are guaranteed to perform better in their teaching methods than the unqualified teachers. This in turn can affect the students' output in terms of achievement. It has been ascertained that teachers have a great influence on students' academic achievement. They are actively involved improving the educational achievement of the students for the reason that the teacher is in the long run in charge of translation of policy into action and principles centered on practice in the course of contact with the students (Afe, 2011; Ada, 2020).

In their study, Wright, Horn and Sanders (2011) in Ada (2020) stated that the most important factor that influences students' learning is the teacher. Teachers is at the edge of the transmitting knowledge, values and skills in the process of learning. Peradventure the teacher is not effective, there is a higher probability that students under such teachers' teaching will not achieve good progress academically (Ada, 2020). This is not in relation to how similar or diverse the students are in terms of different potential in academic achievement. According to Riukin, Hanusheck and Kain (2015) in Ada (2020), by no means has there been an agreement on definite teacher factors that affect students' learning outcome.

Teachers' Teaching Experience versus Academic Achievement in Biology among Secondary School Girls

A study was conducted by Ada (2020) which investigated teacher variables and learning outcome of students with physical and health impairment in selected secondary schools Obudu Local Government Area of Cross River State, and Teacher Variables and Learning Outcome of Students with Physical and Health Impairment Questionnaire (TVLOSPHIQ) was developed and administered to 240 respondents from 55 public secondary schools in the study area using the cluster and simple random sampling techniques. The researcher also employed the use of the survey design method. Analysis of the data and test of the hypotheses were done using Pearson Product Moment Correlation Analysis and One-way Analysis of Variable (ANOVA) Statistics. It was revealed that teaching experience significantly influenced the learning outcome of students with physical and health impairment in school. Thus, the more the teaching experience of teachers, the better and higher the academic achievement of students in school.

Another study was conducted by Ewetan and Ewetan (2015) which investigated how academic performance in Mathematics and English Language is being influenced by teachers' teaching experience in some selected public secondary schools in Ogun State, Nigeria. A descriptive research design was employed. A total of 31 senior secondary schools in the selected two local government areas were included and a sample size of 20 secondary schools through simple random sampling techniques were drawn; 388 students participated in the study. Their responses were analyzed via content analysis. It was revealed that on the matter of teachers' years of experience in the selected public secondary schools in Ado Odo/Ota and Ifo LGAs in Ogun State, the outcomes showed that better results were achieved by schools whose teachers



had more than 10 years of teaching experience; these schools had better outcomes when compared to schools with lesser number of teaching experiences among their teachers.

Years of teaching experience have been identified by some researchers as a factor that could influence student learning outcome. Bomide (2014) and Lower (2017) in Ada (2020) posited that experience increases teachers' effectiveness of the teacher. They agreed that effective teaching is accomplished by practice, inferring that the longer one teaches, the better the teacher and the better the students' learning outcome in examination. Wood (2015) in Ada (2020) defined an experienced teacher as one who has learnt to teach his subject most effectively, writing the definition imposed by the problem and the structures of the system. This implies that a good teacher develops new techniques of communicating knowledge and interest in teaching with passing years on the job. Cuttance, in his article referred to studies carried out by Flowden (2010) and Curthile (2011) resolved that the number of experienced and qualified teachers academically and professionally usually perform better than those schools with inexperienced, unstable and poorly qualified teachers (Ada, 2020).

In a survey of four hundred and eighty-nine elementary teachers in Illinois, Fitch and Fishers (2012); Ada (2020) found out that teachers and administrators found out that sound experience was the greatest obstacle to classroom instruction at the elementary level. Furthermore, Bomide (2014) in Ada (2020) believes that a teacher's knowledge is directly related to pupils' desires to learn and practice. To the teacher, those on training are always sent out on teaching practice at least to introduce them to the four walls of the classroom.

METHODOLOGY

A descriptive survey research design was used for this study. The population that was used for this study comprised teachers teaching biology as a subject in public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria. Multi-stage sampling technique was employed in selecting the sample of the teachers. The steps are as follows:

Step 1: There are about 42 public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria.

Step 2: Out of the 42 public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria, ten public secondary schools were selected through simple random sampling technique.

Step 3: In each school, two biology teachers were selected through purposive sampling technique.

Step 4: A total of 20 biology teachers were used for this study.

A self-constructed structured questionnaire was used to carry out the study based on the research questions.



Teachers' Variable and Academic Achievement in Biology Questionnaire (TVAABQ)

The instrument was self-constructed by the researcher to assess teachers' variable and its effect on students' academic achievement in Biology among secondary school girls. The instrument has two sections: Section A elicited information on some demographic characteristics of the teachers such as school, age, sex, educational qualification, and years of teaching experience, while Section B had 10 items that measured teaching experience and how it affects students' academic achievement in biology among secondary school girls in public. The questions were objectively structured and were answered using Likert scale of strongly agree, agree, strongly disagree and disagree.

In order to make certain the reliability of the research instrument, a test-retest type of reliability was used. The questionnaire was tested twice within a two-week interval. The Cronbach Alpha Method was used in obtaining the reliability of the instruments. This measured the Reliability Consistency (RC) of the instrument; TVAABQ, the Cronbach Alpha Method was used to measure the consistency and a coefficient of 0.64 was obtained. Necessary modifications were done before they were finally administered. The researcher administered the questionnaire to the respondents and the completed questionnaires were collected back immediately to avoid loss. The data collected were analyzed using Pearson Product Moment Correlation Analysis (PPMC) to test two hypotheses at 0.05 level of significance.

RESULTS

Demographic Data Analysis

Table 1: Distribution of Respondents Based on Gender

Gender	Freq.	%
Male	4	20
Female	16	80
Total	20	100.00

Table 1 reveals that 20 respondents (teachers) were involved in this study, out of which 20% were males while 16 (80%) were females.

Table 2: Distribution of Teachers Based on Educational Qualifications

Qualifications	Freq.	%
First Degree (B. Ed/B. A/B. Sc) +/- PGDE	13	65.00
Master Degree (M. Ed/ M. A/ M. Sc) +/- PGDE	7	35.00
Total	20	100.00

Table 2 reveals that majority of the teachers were first degree holders, i.e., 13 with 65.00%, while 7 (35.00%) respondents had master's degree. However, some respondents with either or both degrees did PGDE which qualifies them to be professional teachers and to be employable in the teaching service commission.

**Table 3: Distribution of Teachers based on Years of Teaching Experience**

Teaching Experience (in years)	Freq.	%
1-3	2	10.00
4-10	14	70.00
10 above	4	20.00
TOTAL	20	100

Table 3 reveals distribution of teachers-based teaching experience. Those between 1-3 years of experience were two (10.00%) teachers. Also, 14 (70.00%) had between 4-10 years teaching experience, while those with more than 10 years in service were 4 (20.00%) respondents.

Table 4: Age Distribution of the Teachers

Age range (years)	Freq.	%
20-30	4	20.00
31-40	11	55.00
41-50	3	15.00
50 Above	2	10.00
Total	20	

Table 4 shows the age distribution of the teachers. Between 20-30 years, 4 (20.00%) respondents were found. Also, the finding revealed that the largest number of 11 (55.00%) respondents were between 31- 40 years' age range. In addition, 3 (15.00%) respondents were between 41-50yrs while only 2 (10.00%) respondents were 50 above.

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between teachers' teaching experience and academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State.

Table 5: PPMC Showing Relationship between Teachers' Teaching Experience and Academic Achievement among Secondary School Girls offering Biology

Variables	N	Mean	Std.D	R	P-value	Remark
Teachers' teaching experience	20	2.295	1.168			
Academic achievement among secondary school girls offering biology		81.316	2.041	.324	.05	Not sig.

Df= 18

Table 5 reveals there is no significant relationship between teachers' teaching experience and the academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State ($r=0.324$; $df=18$; $p<0.05$). The result reveals no relationship; this implies that the advancement of a teacher in his/her teaching experience does not have a significance on the academic achievement among secondary school



girls offering biology. Thus, there is no connection between teachers' teaching experience and academic achievement among secondary school girls offering biology.

Hypothesis 2: There is no significant relationship between the influence of teachers' academic qualification and academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State.

Table 6: PPMC showing relationship between Teachers' Academic Qualifications and Academic Achievement among Secondary School Girls offering Biology

Variables	N	Mean	Std. D	R	P-value	Remark
Teachers' academic qualifications	20	21.278	1.749	.41	.05	Not sig.
Academic Achievement among Secondary School Girls offering Biology		25.187	2.041	2		

Df =18

Table 6 reveals there was no significant relationship between teachers' academic qualification and academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State ($r=0.412$; $df=18$; $p>0.05$). The result revealed no relationship; this implies that the advancement of a teacher in his/her educational qualification does not determine the academic achievement among secondary school girls offering biology.

DISCUSSION

Teachers' Teaching Experience versus Academic Achievement in Biology among Secondary School Girls

The research looked into the experience of the teachers, and how teachers' teaching experience correlates with the academic achievement of students in biology among secondary school girls in public secondary schools in Ibadan North Local Government Area of Oyo State ($r=0.324$; $df=18$; $p>0.05$). The result revealed no relationship. This implies that the advancement of a teacher in his/her teaching experience does not determine the academic achievement among secondary school girls offering biology in relation to this study.

This finding does not correlate with a study by Ewetan and Ewetan (2015) in which their results showed that schools whose teachers have more than 10 years of teaching experience have better outcomes when compared to schools with lesser number of teaching experience among their teachers. Similarly, a study that was conducted by Ada (2020), which opposed the findings from this study, posited that the more the teachers' teaching experience, the better and higher the academic achievement of students in school.



Teachers' Educational Qualification and Students' Academic Achievement in Biology among Secondary School Girls

With respect to investigation on the extent of teachers' educational qualification and students' academic achievement in biology among secondary school girls in Ibadan North Local government area, Oyo State, Nigeria, findings revealed that there was no significant relationship between teachers' academic qualifications and academic achievement among secondary school girls offering biology in public secondary schools in Ibadan North Local Government Area of Oyo State, that is, $r=0.412$; $df=18$; $p>0.05$. This implies that the advancement of a teacher in his/her educational qualification does not determine students' academic achievement among secondary school girls offering biology.

This is not congruent with the position of Filgona and Sakiyo (2020) whose regression statistic indicated that teachers' qualifications did predict students' academic achievement, and the predictive value was significant. In addition, the result is not in support of the findings of Ada (2020), who revealed that the higher the teachers' educational qualification, the higher and better the learning outcome of the students.

CONCLUSION

The findings of this study revealed the following:

- Teachers' academic qualification and teachers' teaching experience do not have an influence on the academic achievement in biology among secondary school girls in public secondary schools in Ibadan North Local Government Area of Oyo State, Nigeria.
- Four-fifth of the respondents were females.
- All the teachers were professionally qualified to teach biology in the selected schools based on the Federal Ministry of Education (2014) in conjunction with the recommendation of the Teachers' Council of Nigeria.
- 70% of the teachers had between 4 and 10 years teaching experience.
- Conclusively, during the researcher's visit to the schools, it was observed that some of the schools either do not have a biology laboratory or they have an inadequately furnished laboratory or it may also be used alongside for other courses that requires practical, which will not promote adequate teaching of biology under the aforementioned circumstances.



RECOMMENDATIONS

Based on the above findings,

- Government should continue to employ the services of professionally qualified teachers in the teaching of biology in senior secondary schools in Nigeria, as there has been previous emphasis on going for professionally qualified education for those that did not have the background in the state (Oyo State).
- Government should provide better conditions of service and incentives to retain the existing crop of qualified teachers teaching biology in secondary schools.

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