

Teachers' Academic Qualification, Gender and Teaching Experience as Correlate of Students' Academic Performance in Biology in Oyo State, Nigeria

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Abstract

Many studies have pointed out different variables as factors determining the student achievement in biology. Such factors include parental, students, teachers and school factors. Previous studies show that these factors prevent students to actively involve in the teaching and learning process. Teachers' qualification, teaching experience and teachers' gender have been established to facilitate the teaching and learning process. This study therefore examined the influence of teacher's academic qualifications, gender and teaching experience on students' academic performance of Senior Secondary school Students in Biology. The area of the study was Ido LGA. A case study of ten secondary schools formed the research design. Sample consisted of 20 teachers and 200 SSS II Biology students. Random sampling technique was used to select ten schools from the study area. Teacher's academic qualifications, gender, teaching experience and the SSS II student's first term result formed the data which was analysed using simple percentage, ANOVA tested at 0.05 level of significance and multiple regression. Four null hypotheses were tested in this study. The findings of the research shows that there was a great significant influence of the teacher's academic qualifications [$F = 0.216, p=.049$], gender [$F = 0.298, p=.027$] and teaching experience [$F = 0.012, p=.042$] on student's academic performance. The result also revealed a great significant joint influence of qualification, teachers' gender and teaching experience on students' academic performance. These results were further subjected to Scheffe's post hoc Tests and the results were highly significant. Since teachers professional qualification, gender and teaching experience influence students' academic performance in Biology, the government and all stakeholders in education sector should endeavour to implement its policy on basic education for all, retain experience teachers through better conditions of service, fund education through provision of teaching aids and thus, create an enlightened society in which every Biology teacher would be educated, experienced and competent enough to have a positive influence on their Biology students for better performance in the subject

Keywords: Teachers' Qualification, Gender, Teaching Experience, Biology, Students' Academic Performance

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1. Introduction

Education is a very important human activity (Kimani, Kara and Njagi, 2013). Education is one of the imperative aspects that not only inculcates the essential skills, abilities and knowledge among the individuals, but also leads to overall growth and progress of the individuals, community and nation as a whole. An educated person is not only able to accomplish his desired goals and objectives, but is also able to render an efficient contribution towards the well-being of the community. The inculcation of academic knowledge, skills, abilities and proficiency among the individuals is enhanced through learning and academic performance (Kapur, 2018). According to Boit, Njoki, and Chang'ach(2012) the purpose of education is to equip the citizens to reshape their society and eliminate inequality. It helps any society fashion and model individuals to function well in their environment. Previously, education was conceived as a process of transmission of factual knowledge and the belief in the efficacy of education as a powerful instrument of development has led many nations to commit much of their wealth to the establishment of educational institutions at various levels (Arokoyu and Chukwu, 2017).

Science is an inevitable ingredient for innovation and invention in today's world. Thus, a growing demand for specialized and practicing scientists abounds, as well as the need for others to be educated in the fields of science

Biology and science has made the world a global village and technology-based. Therefore, African countries must develop their science and biology in order to keep them competitive and relevant in an increasingly technology-based world. Although many African countries are making effort at improving biology at all levels of the educational system, it appears that the returns in terms of students learning achievement are

little. Science and technology have become the hallmark for sustainable development in any national economy, but cannot strive ahead without biology. Research evidences have proved that biology's contribution to quality of life and nation building are worthwhile in all aspects. It was based on this that the Federal Government through her national policy on education made biology a compulsory science subject at the secondary school level (NPE, 1984, 2004).

Unlike other science subjects, Biology is expected to be performed much better because the subject matter touches on life and life processes that are expected to be interesting and motivating to the learners. Biology is usually regarded as the most simple to understand among all the science subjects and thus it is the one that usually attract the widest enrolment. Ofoegbu (2004) had asserted that Biology has a large student enrolment than any other science subject especially at the upper basic level of the Nigerian education. Despite the fact that Biology is the simplest to comprehend among the science subjects, the level of academic achievement is nonetheless not much different from other science subjects among the students.

Teachers are essential in the entire educational system of any nation and are pivots on which education wheels revolve. Akinsolu (2010) observed that teachers are vital prerequisites for students' attainment of educational goals and objectives. Teachers' effectiveness has proven to be the most influential school-related factors in students' performance. If teachers' quality is one of the pillars of success in education, it follows then that a serious teacher evaluation system should be put in place mainly because the purpose of evaluation is to recognize, cultivate and develop good teaching process (Ibekwe, 2015). In particular, according to the National Policy on Education (FRN, 2004 and 2013) the knowledge of the curriculum by the teacher is very important as no educational system can rise above the level of the teacher. It is on this note that the present study sought to investigate the influence of Biology teachers' qualification, teaching experience and teacher's gender as correlate to students' poor academic performance in Biology with focus on Ido Local Government Area of Oyo State, Nigeria.

1.2 Objectives of the Study

The objectives of the study are to:

1. determine the appropriate teacher's qualification that suits the academic level of these students.
2. examine the teaching experience of teachers that suits to improve the quality of academic performance of SSS 2 students of biology.
3. Detect the appropriate gender that could facilitate easy learning and assimilation of biology in SSS 2.

1.3 Research Hypothesis

The study tested the following null hypotheses

- Ho₁: There is no significant influence of teacher qualification on students' academic performance.
Ho₂: There is no influence of teaching experience on students' academic performance.
Ho₃: There is no significant influence of teachers' gender on students' academic performance.
Ho₄: There is no significant joint influence of qualification, teachers' gender and experience on students' academic performance.

2. Literature Review

The Federal Republic of Nigeria in the National Policy on Education (FRN, 2006) also recognized the importance of teachers by stating that no nation's education system can be greater than the standard of their teachers. Therefore, teachers remain the major factor in any educational system, and their quality of teaching is undoubtedly one of the most important factors shaping the teaching /learning and achievement of students (Fenstermacher and Richardson, 2005). Teacher quality is a central factor to learners' academic performance (Elliot and Crosswell, 2001; Wanjohi, 2006). Adodo (2007) also noted that the teacher is one of the major factors overriding the success of students' academic performance. Amongst education researchers, teacher quality is widely considered an important school factor and maybe even be the most important factor of students learning (Ladd and Sorenson, 2014; Rivkin, Hanusheck and Kain, 2005). Ndirangu (2004) posits that teachers play an important role in the development and implementation of the curriculum. The quality of education is directly related to the quality of teaching and learning (Kimani, Kara and Njagi, 2013). Teachers cannot be dissociated from the schools they teach and academic results of schools. It would therefore be logical to use the standardized students' assessments results as the basis for judging the performance of teachers.

Teacher characteristics in this study are those attributes, characters and behaviors exhibited by teachers in the classroom and during teaching and learning process. The prevailing conditions of these factors would definitely have a negative or positive influence on the instructional quality in schools, which may translate to either good or poor academic achievement of Secondary school students (Ibe, 2015). However, the big question is: Do our secondary school teachers of Biology in Nigeria possess educational qualification? Why has our students' achievement in Biology been persistently reported low? These are the questions/problems addressed in

the present study.

Biology is a practical-oriented course that needs appropriate qualification and experiences to teach. Teachers must have these basic requirements for teaching to enable them respond effectively to the growing challenges of societal changing demands. Wikipedia (2014) defines teacher education as the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviours and skills they require to perform their tasks effectively in the classroom. According to Osuji (2009) teacher education refers to professional education of teachers towards attainment of attitudes, skills and knowledge considered desirable so as to make them efficient and effective in their work in accordance with the need of a society. These enhance teaching quality and make the teaching of biology more dynamic and goal-oriented. The Federal Government of Nigeria (FRN, 2004) clearly outlined the objectives of teacher training to include: producing highly motivated, conscientious and efficient classroom teachers for all levels of its educational system; to encourage further, the spirit of enquiry and creativity in teachers; to help teachers fit into social life of the community and the society at large; to enhance teachers commitment to national goals by providing them with the intellectual and professional background adequate for their assignment to help them adapt to changing situations, and to enhance their commitment to the teaching profession (Etiubon and Benson, 2014). Teacher training programme involve practices and methods that aim at promoting creativity and skill for professional qualification (Etiubon and Benson, 2014). It is also a fact that being a trained teacher does not guarantee effective teaching and learning of biology. Previous studies found conflicting results on teacher qualification and their level of teaching effectiveness in line with the curriculum requirements. For instance, Owoeye (2000) observes that teacher's educational level was a powerful determinant of academic achievement of students.

According to Ibrahim (2000), the qualification and exposure of a teacher could have far-reaching effects on students' academic performance and achievement. Good academic performance could in part, contribute to the cognitive, affective (attitude) and psychomotor domains of an individual. Teachers' quality is directly proportional to students' performance. This implies that teachers' role in the preparation of students to succeed in examinations cannot be undermined. Teachers' qualifications in any educational system determine to a great extent the quality of the system itself. Teachers' quality is widely thought of as an essential determinant of academic performance (Ibeawuchi 2012). It is probably for this reason that Ibukun (2009) asserted that no education system can rise above the quality of its teachers in any nation. The Nigeria National Economic Empowerment and Development Strategy (NEEDS) in its educational analysis in 2005 revealed that that over 49% of the teachers in Nigeria are unqualified. This underscores the quality of teachers teaching various subjects to the secondary school students, biology inclusive.

Teacher experience has to do with the increased awareness of diversifying search for new ideas, new commitments and new challenges. Teachers' experience and knowledge of subject matter are unique qualities for teaching effectiveness (Etiubon and Benson, 2014). According to Rice (2010) the magnitude of the effect of teacher experience varies depending on the teacher's level of education and the subject area. He further opined that experience gained over time, enhances the knowledge, skills, and productivity of workers. These qualities facilitate students' skills and abilities to think about biological processes useful for exploration and analysis, and also enable thorough understanding of biological concepts. Experienced teachers are great asset to novice teachers who need advice, encouragement and continuous guidance (Etiubon and Benson, 2014).

Researchers have examined the influence of teacher characteristics such as age and gender on students' achievement with varied findings. For instance, Akiri and Ugborugbo (2009) found that, there was a significant relationship between teachers' gender and students' academic achievement in secondary schools.

3. Methodology

The study adopted a survey research design and the population of the study was made up of twenty (20) biology teachers and SSS 2 biology students from the 10 randomly selected schools in Ido LGA of Oyo State. Random sampling technique was used to select 10 students from each selected schools totaling two hundred (200). All the twenty and two hundred copies of questionnaire distributed to the teachers and students respectively were properly filled and returned. This made a return rate of 100%. SSS 1 and 3 were exempted from the study because the researcher believed that SSS 1 are just starting biology and SSS 3 are preparing for their external examination.

Questionnaires titled Teachers Questionnaire on the Influence of Teachers' Factors on The Academic Performance of Students in Biology (TQITFAPSB), Students' Questionnaire on the Influence of Teachers' Factors on The Academic Performance of Students in Biology (SQITFAPSB) and Biology Achievement Test (BAT) were used for data collection in this study. The data were analyzed using descriptive statistics such as percentage frequency distribution, and inferential statistic; ANOVA and Multiple Regression. Post Hoc tests, using Scheffe were carried out in order to determine the point of the statistical difference.

4. Data Analysis and Results Interpretation

The majority of the teachers in the randomly selected secondary schools were males making 55% and females were 45% as shown in table 1. In all, there were twenty (20) teachers altogether comprising 11 males and 9 females respectively from the schools selected who responded to the instruments.

Table 1: Frequency and Percentage Distribution of Teachers According to Gender

Teachers Gender	Frequency	Percent (%)
Female	9	45.0
Male	11	55.0
Total	20	100.0

The majority of the teachers that responded to the instruments were in the age category of 36-40 years (10) which accounts to 50% and the least were in the range 25-35years (4) which is 20% and the rest (6) were in the range 41 years and above with 30% as shown in table 2.

Table 2: Frequency and Percentage Distribution of Teachers according to Age

Age of Teachers	Frequency	Percent (%)
25-35	4	20.0
36-40	10	50.0
41 and Above	6	30.0
Total	20	100.0

The distribution of selected secondary school biology teachers according to their year of experience is shown in Table 3. Ten teachers have 11-20 years experience which amounts to 50% followed by seven teachers with 1-10 years of experience which is 35% and the least years of experience was 21-30 years with just three teachers which is 15%.

Table 3: Frequency and Percentage Distribution of Teachers According to Years of Experience

Experience of Teachers	Frequency	Percent (%)
1-10	7	35.0
11-20	10	50.0
21-30	3	15.0
Total	20	100.0

In all the ten randomly selected secondary schools in Ido Local Government, biology teachers have various degrees of teachers' qualification as shown in table 4 below. These degrees include NCE, B.Sc., HND, B.Sc. Ed, PGDE and M.Ed.

Table 4: Frequency and Percentage Distribution of Teachers According to Educational Qualification

Qualification of Teachers	Frequency	Percent (%)
NCE (A)	3	15.0
BSC/HND (B)	6	30.0
M.Ed/PGDE/B.Sc.Ed (C)	11	55.0
Total	20	100.0

'A' teachers was the least with 3 which is 15% followed by 'B' teachers which were 6 accounting 30% and the highest number of teachers were 'C' teachers with 11 respondents which accounts to 55%. The percentage occurrence of the teachers' qualification is indicated in figure 1. The educationally trained biology teachers in the randomly selected secondary schools were 55%, non-educationally trained biology teachers were 30% while the least percentage were NCE graduates biology teachers.

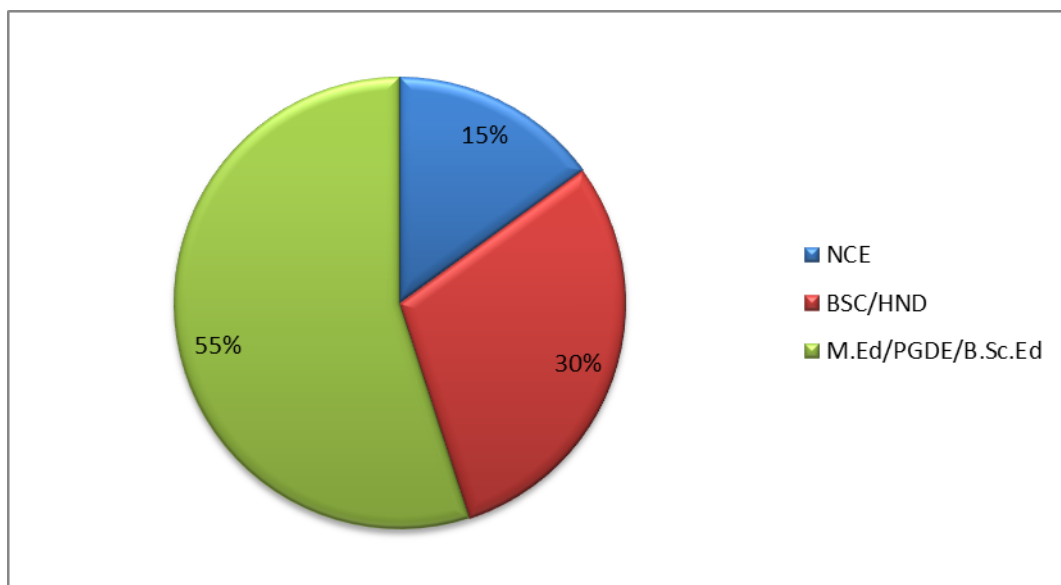


Figure 1: Percentage of occurrence of Teachers' Qualification

Out of the 20 teachers, 14 teachers which amount to 70% of the population do not teach other subjects apart from biology while 6 which account to 30% teach other subjects as shown in table 5a. Also, 16 teachers (80%) teach other classes apart from SSS 2 while 4 teachers (20%) do not teach other classes apart from SSS 2 biology as shown in table 5b.

Table 5a: Frequency and Percentage Distribution of Teachers According to Subjects Taught

Subject Taught	Frequency	Percent (%)
NO	14	70.0
YES	6	30.0
Total	20	100.0

Table 5b: Frequency and Percentage Distribution of Teachers According to Classes Taught

Classes Taught	Frequency	Percent (%)
NO	4	20.0
YES	16	80.0
Total	20	100.0

Table 6 shows the results of other random questions asked from the biology teachers. According to the table, teachers strongly agree that a qualified teacher is the one who passes through education as a course with 80% while all the sampled teachers strongly agree that only graduate teachers who studied biology education should be allowed to teach SSS 2 biology. 65% of the teacher strongly agreed that a qualified teacher is an experienced teacher on the field. Also, all the sampled teachers believed that experience of a teacher and experience of a teacher with qualification in education helps influence students' academic performance. 55% of the sampled teachers strongly disagree that has nothing to do with education. 55% of the sampled teachers strongly agree that teachers' gender has influence on the academic performance of SSS 2 students in biology. Half of the sampled teachers strongly agreed that undergoing a course in institution of education improves the experienced teacher. As shown in table 6, 135 students which amount to 67.5% responded in the affirmative that they possess biology textbooks while 65 students which is 32.5% do not have biology textbooks.

Table 6: Frequency and Percentage Distribution of Students According to Possession of Biology Textbook(s)

Possession of Textbook	Frequency	Percent (%)
No	65	32.5
Yes	135	67.5
Total	200	100.0

The students' assessment of their biology lesson is presented in table 8. Fifty (25%) students graded their biology lesson as Satisfactory, 120 (60%) as Average and 30 (15%) graded it as Good as shown in table 7.

Table 7: Frequency and Percentage Distribution of Students According to assessment of their Biology Lesson

Assessment of Biology Lesson	Frequency	Percent (%)
Good	30	15.0
Average	120	60.0
Satisfactory	50	25.0
Total	200	100.0

Out of the 200 students, 40 (20%) had a mark grade of 40-49, 80 (40%) had 60-69, 35 (17.5%) had 70-79, 25 (12.5%) had 80-89 while the least number of students (10) had 50-59 and 90 and above mark grade which account to 5% each in their 3rd term biology examination as presented in table 8.

Table 8: Frequency and Percentage Distribution of Students' Scores

Students' Score	Frequency	Percent (%)
40-49	40	20.0
50-59	10	5.0
60-69	80	40.0
70-79	35	17.5
80-89	25	12.5
90 and above	10	5.0
Total	200	100.0

It was observed that 74.5 % of the students believed that there grade was as a result of the gender of their biology teacher as shown in table 9.

Table 9: Frequency and Percentage Distribution of Students' Scores and Teachers' Gender.

Students' score and Teachers Gender	Frequency	Percent (%)
No	51	25.5
Yes	149	74.5
Total	200	100.0

Out of the 200 students, 80% of the students believed that there grade was as a result of their biology teacher's qualification as shown in table 10

Table 10: Frequency and Percentage Distribution of Students' Score and Teachers' Qualification.

Students' score and Teachers Qualification	Frequency	Percent (%)
No	40	20.0
Yes	160	80.0
Total	200	100.0

Sixty Five percent (65%) of the students believed that there grade was as a result of their biology teacher's teaching experience as shown in table 11.

Table 11: Frequency and Percentage Distribution of Students' Score and Teachers' Experience.

Students' score and Teachers Experience	Frequency	Percent (%)
No	70	35.0
Yes	130	65.0
Total	200	100.0

Out of the 200 students that responded, 185 (92.5%) answered in the affirmative that they have biology laboratory in their schools while 15 (7.5%) said they do not have as shown in table 12a. Table 12b presented the likeness of operation in the biology laboratory. 17.5% of the students rated the operation as excellent, 60% rated the operation as good while 22.5 rated it as fair.

Table 12a: Frequency and Percentage Distribution of Students and Availability of Biology Laboratory.

Availability of Biology Laboratory	Frequency	Percent (%)
No	20	10.0
Yes	180	90.0
Total	200	100.0

Table 13b: Frequency and Percentage Distribution of Students and their likeness of their Biology Laboratory Operations

Laboratory Operations	Frequency	Percent (%)
Fair	45	22.5
Good	120	60.0
Excellent	35	17.5
Total	200	100.0

It was observed from table 13 that 135 of the students rated their likeness for their teacher to be good, 46 rated it excellent while 19 rated it fair.

Table 13: Frequency and Percentage Distribution of Students and their Likeness of their Biology Teachers

Likeness of Biology Teacher	Frequency	Percent
Fair	19	9.5
Good	135	67.5
Excellent	46	23.0
Total	200	100.0

4.1 Answering Hypothesis

H₀₁: There is no significant influence of teacher qualification on students' academic performance.

Table 14: ANOVA for the Relationship between Teachers' Qualification and Students' Academic Performance in Biology

	Sum of Squares	Df	Mean Square	F	Sig.
Performance * Between Groups (Combined)	1.234	5	.041	.010	.049
Qualification Within Groups	219.745	195	4.027		
Total	220.979	200			

From the above ANOVA table, it was observed that teachers' qualification significantly influence academic performance of the students. There was statistically significant influence at $p < 0.05$ in the interaction effect of the teacher' qualification on the academic performance of physics, chemistry and biology students [$F = 0.10$, $p = .049$] as shown in table 14. Since the interaction effect of the teacher' qualification on the academic performance of biology students were found to be significant, therefore, the H_0 will be rejected at 5% level of significance.

Table 15: Scheffe Post-Hoc Analysis Showing The Significant Differences Among The Teachers' Qualification on Academic Performance in Biology.

Teachers' Qualification	N	Subset for alpha = .05	
		1	2
NCE	3	55.4000	
BSC/HND	6		64.5125
M.Ed/PGDE/B.Sc. Ed	11		67.0000
Sig.		1.000	.635

Table 15 reveals that, teachers with NCE qualification has the least mean score ($\bar{x} = 55.40$), followed by those with BSC/HND qualification ($\bar{x} = 64.51$), and those with M.Ed/PGDE/B.Sc. Ed Qualification ($\bar{x} = 67.00$). This implies that teachers with M.Ed/PGDE/B.Sc. Ed qualifications were more capable in improving students' academic performance in Biology which was followed by those with BSC/HND qualification and lastly by those with NCE qualification. The coefficient of determination (Adjusted R-squared = .635) overall indicates that the

difference that exist in the teachers' qualification accounts for 63.5% in the variation of academic performance in biology.

H0₂: There is no significant influence of teaching experience on students' academic performance.

Table 16: ANOVA for the Relationship between Teachers' Experience and Students' Academic Performance in Biology.

	Sum of Squares	Df	Mean Square	F	Sig.
Performance Between Groups (Combined)	2.515	5	1.258	.216	.042
* Experience Within Groups	210.922	195	3.840		
Total	213.437	200			

The data above indicate that the exact probability level of 0.042 is less than the already set Alpha level of 0.05 at 5 degrees of freedom therefore teaching experience has significant influence on academic performance of SSS 2 biology students.

Table 17: Scheffe Post-Hoc Analysis Showing The Significant Differences Among The Teaching Experience on Academic Performance in Biology.

Teaching Experience	N	Subset for alpha = .05	
		1	2
1-10 years	7	59.0000	
11-20 years	10		61.3000
21-30 years	3		69.6833
Sig.		1.000	.785

Table 17 reveals that, teachers with 1-10 years teaching experience has the least mean score (\bar{x} =59.00), followed by those with 11-20 years teaching experience, (\bar{x} =61.30) and teachers with 21-30 years teaching experience (\bar{x} =23.94). This implies that teachers with 21-30 years of teaching experience were more significant in improving students' academic performance in Biology which was followed by those with 11-20 years of teaching experience, and lastly by those with 1-10 years teaching experience. The coefficient of determination (Adjusted R-squared =.785) overall indicates that the difference that exist in the qualification account for 78.5% in the variation of academic performance in biology.

H0₃: There is no significant influence of teachers' gender on students' academic performance.

Table 18: ANOVA for the Relationship between Teachers' Gender and Students' Academic Performance in Biology

	Sum of Squares	Df	Mean Square	F	Sig.
Performance Between Groups (Combined)	1.092	5	1.092	.298	.027
* Gender Within Groups	213.345	195	3.668		
Total	214.437	200			

From the above ANOVA table, it was observed that the teachers' gender significantly influence the academic performance of the students. Therefore, the H₀ will be rejected at 5% level of significance

Table 19: Scheffe Post-Hoc Analysis Showing The Significant Differences Among The Teachers' Gender on Academic Performance in Biology.

Teachers' Gender	N	Subset for alpha = .05	
		1	2
Female	9	65.7000	
Male	11		82.5125
Sig.		1.000	.833

Table 19 reveals that, female teachers has the least mean score (\bar{x} =65.70) while the male teachers has the greater mean score (\bar{x} =82.51). This implies that male teachers were more potent in improving students' academic performance in Biology than the female teachers. The coefficient of determination (Adjusted R-squared =.833) overall indicates that the difference that exist in the gender accounts for 83.% in the variation of academic performance in biology.

H0₄: There is no significant interaction effect of qualification, teachers' gender and teaching experience on students' academic performance.

Table 20: Regression Analysis of Teachers’ Factors and Students’ Academic Performance in Biology. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.375 ^a	.140	.126	4.06102	.140	9.580	3	197	.000

a. Predictors: (Constant), Experience, Gender, Qualification

Regression analysis was carried out using a model, which combines selected independent variables and dependent variables. The academic achievement was dependent variable, while Teachers’ factors such as teachers’ qualification, experience and gender representing the independent factors. R squared represents the values of multiple correlation coefficients between the predictors used in the model and the academic achievement of the students. All the predictors used in the model represent only a simple correlation between the predictors and the academic achievement of the students. The R- Squared represented the measure of variability in academic achievement of student schools that is accounted for by teachers’ qualification, experience and gender as (independent variables). From the model, (R- squared = .0140) shows that all the predictors account for 1.40% variation for the academic achievement of students).

5. Discussion of Findings

Several studies have reported globally their findings on students’ poor performance in biology basically due to lack of involving students in the teaching and learning activities right from the beginning of any new concept to be taught, lack of qualified teachers as well as experiences in teaching and unavailability and/or insufficiency of materials in the laboratories. It is not gain saying that performance of students in biology is one of the worst if not the worst of all science subjects. After analyzing the data collected in this study, it was deduced that teachers’ qualification has great influence in biology. This position is in agreement with the findings of Boyd, Grossman, Lankford, Loeb and Wyckoff (2011) who in their studies posited that student achievement is most enhanced when teachers are fully certified, and have completed a teacher education programme. Studies have shown that secondary school science teachers’ education correlates positively with their learners’ achievement in matriculation examinations (Langat, 2018). In table 4 of this study, the largest percentage (55%) of the sampled teachers have qualification background in education discipline. Most teachers through sandwich courses have acquired new knowledge and qualifications for example NCE teachers and B.Sc./HND graduates have enrolled in various universities and institutes of education for further studies and educational courses respectively. In figure 1, it was observed that 15% of the teachers where NCE and 30% were BSC/HND. This is an indication that within the next few years, there may not be any NCE teachers or BSC/HND graduate in various secondary schools in Oyo State through sandwich courses.

Testing the null hypothesis, it was discovered as shown in table 14 that there is a significant influence of teachers’ qualification on the academic performance of students in biology. This result is in agreement with the work of Harris and Sass (2006) where they examined how teacher qualifications and in service training affected student achievement in Florida. They found out that teacher course work in both subject taught and pedagogy contributes to positive education outcomes. The finding from this study also commemorates that of Darling-Hammond (2000), Egungun (1992) and Iyamu (2005) who in their various studies made assertion that qualitative education is a function of quality and quantity of teaching personnel within a system.

On the issue of teachers’ years of experience in the selected public secondary schools in Ido Local Government Area, table 15 showed that teachers’ teaching experience significantly influences academic performance of students in biology at $p < 0.005$. This is evident from the report of a study reported by Balarabe, Aisha, Rahanatu and Ibrahim (2019) that student taught by teachers that had teaching experience of above 10years had 67.3% passes followed by 48.6% out of 2763 who were taught by teachers with 6-10years of teaching experience and the least was 17.4% out of 2120 students taught by teachers with teaching experience of 1-5years. They posited that student academic performance increases with increasing years of teaching experience of the teacher. This shows that experienced and committed teachers tend to be more precise in their teaching hence producing good performance than inexperienced teachers. Langat (2018) made an assertion from his study that those who had over ten years teaching experience composed of 33.3%. Therefore, low academic performance of secondary schools students in Physics in the Bureti Sub County had been due to a higher number of inexperienced teachers in the teaching of physics.

These findings indicated that teachers’ years of experience is a measure of quality and this become imperative in the achievement of students’ academic performance in biology which showed a significant relationship between teachers’ years of experience and students’ academic performance. This finding is also in

conformity with those of Owolabi (2007) and Darling-Hammond (2000) who in their studies reported that teacher year of experience is a measure of quality is important in the achievement of students' academic performance in biology.

Teachers' gender significantly influence on the academic performance of student at 5% significant level as presented in table 16. This is in agreement with the report of Nabwire, Toili, Ong'unya, and Songok, (2014) who in their report stated that students' performance seems to be influenced by their attitude towards their teachers' gender and manner of interaction. They also reported that many female biology teachers are better than their male counterpart as the focus of female teachers is not about finishing the syllabus like their male counterpart but to ensure students understand the concept taught. However, on the resilience of teachers, 80% of the directors of studies (DOSS) and 70% of the heads of department (HODs) indicated that female biology teachers used a variety of instructional resources while teaching unlike their male counterparts. This was also confirmed by one of the HODs who reported during the interview that, "I have observed both female and male teachers teach Biology and concluded that given a variety of resources, female teachers can be more effective than their male counterparts" (Nabwire, Toili, Ong'unya, and Songok, 2014). They suggested in their findings that female teachers exhibit positive attitude towards students than their male counterparts.

In addition, it was observed that the three independent variables; teachers qualification, teaching experience and teachers gender has significant interaction influence on the performance of SSS 2 biology students as presented in table 18. Teachers should endeavour to make use of different methods that fits a particular topic. Some of the pupils do not enjoy their biology laboratory operations hence challenges in the assimilation of things learnt. Biology as a practical oriented course requires the use of instructional materials as a teaching methodology. Teachers should adopt then use of laboratory method but so as to improve the students' psychomotor, affective and cognitive domains.

6. Conclusion

From the findings of this study, the following conclusions have been drawn:

- I. Most biology teachers in secondary schools are educationally trained and the few untrained ones with experience have enrolled for further studies. All the schools sampled had either the two teachers as educationally trained or one of the teachers will be educationally trained. None of the school had the two teachers of biology as uneducationally trained.
- II. Most biology teachers were male.
- III. Some sampled schools (10%) do not have biology laboratory and even some that has had their operation on a fair scale so demonstration/teaching aids as a method may not be fully used in such schools.
- IV. Also, some of the students did not have relevant biology textbooks. This could be a reason for most of them disliking their biology lesson and not doing their home works.
- V. It was also observed that from the three groups of teachers in secondary schools based on qualification, the M.Ed/PGDE/B.Sc.Ed. group is the most numerous and provides the best academic performance. On this premise, this group should be regarded to be teaching SSS II while others could be teaching lower classes.

7. Recommendations

Based on the above view and the findings from this study, the following recommendations were made:

- I. The Government should employ the educationally trained teachers and others with experience that can be improved through professional development programmes, sandwich courses and seminars.
- II. Biology teachers should base their SSS students' academic grading on both practical and theories
- III. The school authority should try and assist the biology teachers by allowing them to organize excursion, field trips to botanical and zoological gardens and industries and also to aid in establishing practical sessions in the laboratory so as to promote better academic performance in biology.
- IV. The school authority should also make sure that teachers make use of adequate teaching aids, use of computer and encourage them to improvise equipment where necessary.
- V. Government should provide better conditions of service and incentives to retain the existing crop of qualified teachers teaching biology in secondary schools.
- VI. Academic performance of students should be a requirement for teachers' promotion exercise.
- VII. There is the need for the male teachers to create a conducive atmosphere for healthy academic interaction with their students.

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