

BIOLOGY TEACHERS' IMPACT ON STUDENTS' ACADEMIC PERFORMANCE IN SENIOR SECONDARY SCHOOLS IN OSUN STATE, NIGERIA

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Abstract: *This study examined the Biology teachers' impact on the performance of students in secondary schools in Osun State, Nigeria. This study sample included forty-eight (48) Secondary Schools selected by random sampling technique. The researcher designed teachers' questionnaire which were administered to one hundred forty-five (145) Biology teachers. Researcher-designed validated questionnaire was used to elicit information from the respondents on the impact of biology teachers to the performance of students. Three research questions and two research hypotheses were formulated. Frequency counts and t-test statistics were used to analysis the data collected. Finding of this study revealed that Biology teachers' impact to teaching in Secondary Schools was significant based on gender but it was not significant based on years of teaching experience. Based on the research findings recommendations were made on how the Biology teachers will have positive impact on students' performance in senior secondary schools among others.*

Key words: *biology; teachers, students'; performance; senior secondary schools;*

Introduction: Biology is a unique branch of Science that deals with the study of life. It is the branch of science that involves the study of the life of plants, animals, humans and any others type of living organism (Akanji, Babunmi & Bewaji, 2003). Biology can also be defined as the natural science concerned with the study of life and living organism, including their structures, function, growth, origin, evolution, distribution and taxonomy. However, Biology is broadly divided into Zoology, Botany etc. Zoology is the branch of Biology that related to the animal kingdom including their structure, embryology, evolution, classification, habit and distribution of all animals, both living and extinct and how they interact with their ecosystem while Botany is the study of plant life. (Grejson, 2013).

Students Perform poorly in biology because the biology classes are usually too large and heterogeneous in terms of ability level. In addition, the laboratories are ill-equipped and the biology syllabus is over loaded (Ahmed, 2008; Ajayi, 1998). Most teachers fail to realize that they are very vital in educational effectiveness at the classroom instructional level. How they teach, behave and interact with students in the classroom or during teaching are sometimes more vital than what they teach. It is therefore clear that a teacher's way of thinking and attitude determines his/her behaviour and decision inside and outside the classroom (Onoshakpokaiye, 2011). Abidoeye, Ahmed, Ahmed, & Maroof (2022) observed the availability of Laboratory Facilities on Students' Performance in Upper Basic Schools in Kwara State, Nigeria. The result shows that there was significant difference in the performance of students.

Gender determines what is expected, allowed and valued in a woman or a man in a given context. The differences in societal value of men and women in terms of responsibilities, activities undertaken, access and control over resources as well as decision taken are all gender based. Abiri & Ugborugbo (2008) examined the influence of gender on the productivity of secondary school teachers in Delta state, Nigeria. The results of the analysis revealed that although there was no significant difference in the productivity of male and female teachers, the male teachers were generally more productive than their female counterparts and that female teachers were more influenced by location than the male teachers. Okoro, Ekanem & Udoh (2012) investigated the effect of teachers' gender on the academic performance of children in primary schools in Oyo metropolis. But the results showed that teacher-pupil gender interactions do significantly affect pupils' academic performance.

Teaching experience is a vital tool in the science teaching and learning situations. Experience can be said to be the attitude or skill acquired by

the teacher through his perception and participation in instructional programmes. The experience of the teachers will help him to be able to cope and adapt to change in the educational programmes (Lawal, 2011). Hanushek, Rivkin and Kain (2005) observed the Market for teacher quality and the finding indicated that students of experienced teachers achieved better than students of new teachers (those with one to three years of experience). The Centre for Public Education (2005) stated that research has been consistent in finding positive correlations between teaching experience and higher students' achievement. Teachers with more than five years teaching experience were found to be the most effective while inexperience is shown to have strong negative effect on students' performance.

Purpose of the study: This study determined the Biology teachers' impact on students' performance in senior secondary schools in Osun State, Nigeria.

Specifically, this study examined:

- (1) Biology teachers made on the students performance in the senior secondary school in Osun State
- (2) Biology teachers impact on the students' performance in the senior secondary school in Osun State based on gender
- (3) Biology teachers impact on the students performance in the senior secondary school in Osun State based of years of teaching experience

Research Questions: The questions is formulated below

- (1) what is the Biology teachers impact on the students' performance in the senior secondary school in Osun State?
- (2) Does the gender of Biology teachers have impact on students' performance in the senior secondary school in Osun State?
- (3) Does years of teaching experience of biology teachers have impact on students' performance in the senior secondary school in Osun State?

Research hypotheses: The questions is formulated below

- (1) There is no significant difference on the Biology teachers' impact on students' performance in the senior secondary school in Osun State.
- (2) There is no significant difference on Biology teachers' impact on years of teaching experience on students' performance in the senior secondary school in Osun State.

Material and Method: This study is a survey method of descriptive type. The research instrument consist two session questionnaire. Session 1 contains general information about the responded and

session 2 contains questions for the responded. These studied has been carried out in senior secondary school in Osun State, Nigeria. This included biology teachers in all Secondary Schools located in Osun State, Nigeria. The studies were carried out in forty-eight (48) secondary schools in Osun State. The total numbers of 145 biology teachers were involved in the study. Variables that were tested in the study were: gender and years of teaching experience and Biology teachers' impact on students' performance was determined in the studies.

A minimum of one hundred and five (145) Biology teachers were involved in the study. A researcher-designed teachers' questionnaire was used as the instrument for the collection of data from science teachers in the sampled schools. T-test analysis was used to test both the hypotheses one and two.

Results: Research Question One

What is the Biology teachers' impact on students' performance in the senior secondary school in Osun State?

Table 1 shows the numbers of responses of Biology teachers' impact to the performance of students in Osun State, Nigeria. The total number of respondents was 145 Biology teachers. The mean score was 89.54. The Biology teachers' impact on the performance of students was significantly positive since $p\text{-value} (0.00) < 0.05$ ($t = 22.90$; $df = 144$ and $p\text{-value} = 0.00$). This shows that Biology teachers in Osun State, Nigeria generally had positive impact on the students' performance

	Number of respondents	Mean Score	Std. Deviation	T	Df	p-value
Total	145	89.54	52.02	22.90	144	0.00

Table 1: Mean Score and t- test for testing Biology Teachers' impact on the students' performance in Osun State, Nigeria

Research Question Two: Does the gender of the biology teachers have impact on students' performance in the senior secondary school in Osun State?

Table 2 shows that the mean scores for male was 76.73 and for female was 66.51 and that no significant difference existed between the score of male and female Biology teachers impact on the students' performance since the $p\text{-value} (0.04) < 0.05$. The null hypothesis 1 (H_{01}), which states that there is no significant difference in the impact of gender of the biology teachers on students' performance in the senior secondary school in Osun State based on gender is rejected.

Gender	No of Respondents	Mean Score	Standard Deviation	Std. Error Mean	t value	df	p-value
Male	92	76.73	39.55	4.12	1.42	144	0.04
Female	53	66.51	45.60	6.26			

Table 2: Mean Scores and t-test for testing Biology Teachers' impact on students' performance based on Gender in Osun State, Nigeria

Research Question 3: Biology teachers impact on years of teaching experience on students' performance in the senior secondary school in Osun State?

Table 3 shows the mean scores and reveals that there was significant difference between the experienced and less experienced Biology teachers impact to the students' performance in Osun State, Nigeria since the p-value (0.51) > 0.05. The mean scores range between 72.02 and 73.68. The null hypothesis 3 (Ho₂), which states that there is no significant difference on the impact of years of teaching experience of biology teachers on students' performance in the senior secondary school in Osun State, is not rejected.

Experience	No of Respondents	Mean Score	Standard Deviation	Std. Error Mean	T	Df	p-value
Less experience (0-5)	60	72.02	43.24	5.58	0.23	144	0.51
Experience (above 5 years)	85	73.68	41.34	4.48			

Table 3: Mean Scores and t-test for testing Biology Teachers' impact on the students' performance based on years of teaching experience in Osun State, Nigeria

Summary of Major Findings: The research findings of this study as obtained from t-test based on the Research questions and hypotheses are summarized as follows:

- (1) Biology teachers had positive impact on students' performance in senior secondary school in Osun State, Nigeria.
- (2) The Biology teachers' impact on the students' performance in the secondary school based on gender was significant.
- (3) The impact of Biology teachers on students' performance in the secondary school based on their years of teaching experience was not significant.

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Declaration of interest statement

The study was from Lecturers from university of Ilorin, Ilorin, Kwara State, Nigeria

Hereby, we as the authors consciously assure that for the manuscript “
” the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

DISCUSSION:

In this study, it was found out that Biology teachers' impact on students' academic performance in Osun State, Nigeria was significant based on their responses. Biology teachers had positive impact on students' performance. These may be due to the fact that they are the key to students' success because they play an important role in imparting the knowledge and equipping the students to be useful to themselves and the society. This is in agreement with the findings of Afolabi (2007) who examine the influence of the science teachers' attitude and gender factor as determinant of pupils' performance in primary science and found out that the attitude of science teachers have greater effect on the students' academic performance.

It was established in this study that there was significant difference in the Biology teachers' impact on students' performance based on their gender. This may be hinged on the fact that intelligence is gender based. This study is in agreement with the finding of Okoro, Ekanem & Udoh (2012) who investigated the effect of teachers' gender on the academic performance of children in primary schools in Oyo metropolis.

It was found in the study that there was no significant difference in Biology teachers' impact on students' academic performance based on their years of teaching experience. It may be due to the fact that both experienced and less experience Biology teachers are able to concentrate on the most appropriate way to teach particular topics to students who differ in their abilities, prior knowledge and backgrounds. This finding is in agreement with the finding of Hanushek, Rivkin and

Kain (2005) who observed the Market for teacher quality and the result indicated that there was no significant difference. Similarly, also agree with the finding of Abidoye (2017) observed the influence of gender and experience of senior school Biology Teachers on their Ecology teaching in Kwara State. The findings showed that no significant difference existed in the experience and less experience biology teachers.

Conclusions: Based on the findings of the study, the following major conclusions can be drawn. Biology teachers had positive impact on the students' performance in Osun State and based on their gender while Biology teachers impact based on years of teaching experience was not significant in the analysis conducted.

Recommendations: Based on the findings of this study, it is hereby recommended that;

- (1) Adequate instructional materials should be made available for Biology teachers to further enhance their positive impact on the students' performance.
- (2) Both male and female science teachers should be encouraged by provision of special incentive for improvement on their impact on students' performance.
- (3) Both experienced and less experienced Biology teachers should be encouraged to acquire more professional experience in order to improve on their impact to students' performance.

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