



# THE INFLUENCE OF TEACHERS' CHARACTERISTICS ON EFFECTING MENTORING ON SENIOR SECONDARY SCHOOL BIOLOGY STUDENTS

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## ABSTRACT

*The characteristic of the teacher is widely believed to be important for effective teaching. Teachers' characteristics are often associated with the teacher's quality. The purpose of this study was to establish the influence of teachers' characteristics on effecting mentoring in senior secondary Biology. The study focused on the following independent variables: teacher's gender, age, experience and teacher subject area. The study investigated their influence on teachers' effectiveness in mentoring Biology students. The study employed a descriptive research design. The sample size was 100 selected from 525 biology teachers in Ekiti State, Nigeria through simple random sampling. A validated questionnaire which was adjudged to be reliable after going through test-retest method was used for data collection. Data was analyzed using Multiple Regression analysis, which revealed that there was significant joint influence of Biology teachers' characteristics on mentoring effectiveness in Nigerian secondary schools. The study therefore recommends teacher's overall development in enhancing the characteristics required for effective mentoring of students.*

**KEYWORDS:** *Teachers, secondary schools, millennium development goals, student relationships*

## INTRODUCTION

The need to encourage students to study science cannot be over stressed, as the role of science in national and societal development cannot be underscored. Biology, a popular science subject in Nigeria secondary school curriculum deserves constant attention due to its importance to human lives. The knowledge of biology was identified by UNESCO in Kosgei (2013) as imperative to the attainment of the millennium development goals. These goals include food security, eradication of child mortality, and reduction of the spread of HIV and AIDS among others. Despite this, students' performance in Biology is not up to expectation. It is observed that students tend to shy from studying science. In an interview with students, the researcher noticed that teacher-student barrier constitute some reasons for this. It is now thought that, if teachers can bridge the gap by being more accommodating with students, they will be able to encourage performance and a positive attitude towards science learning through teaching. Mentoring in Science teaching is thought to be a way of persuading more students into science learning. Thus all stakeholders in science education need to show genuine commitment to its development such that students who pass through schools acquire the basic knowledge and skills necessary for transforming their society or meeting societal goals (Osokoya, 2002).

Different Countries have prerequisite qualifications for appointment into the teaching Profession. Many researches

have been done on analyzing the impact of teacher's characteristics on student performance. The relationship between teacher's characteristics and student performance is difficult to describe. Wayne and Youngs, (2003) affirmed that the question of whether characteristics of teachers in various parts of the schooling system exist is often investigated, however more findings are still being required by researchers in discovering the aspect of teachers' feature that significantly relate with student performance (Chingos and Peterson, 2011). The influence of teacher characteristics is significant in education policy. Policymakers are saddled with the responsibility of ensuring that teachers who are best suited and most able to enhance student performance are employed. Teacher's effectiveness is paramount to students' learning. Teacher's effectiveness is measured as the effect that teachers have on students' learning outcome. In the findings of Kosgei (2013) it was discovered that student academic achievement was overshadowed by the overall characteristics of teachers. Attention to the characteristics of teachers in interaction with students is a matter to be considered. In a study conducted by Slater, Davies and Burgess (2009) on the relationship between observable teacher's characteristics and student's performances, a weak correlation was discovered between the ability of students and teacher's effectiveness, the researchers thus suggested a non-random allocation of students to teachers in such a way that places less able students with more effective teachers which may enhance positive impact

of teacher’s effectiveness. Slater et al. (2009) investigated whether the observable characteristics of teachers correlate with measures of teacher’s effectiveness. Adeyemo (2005) writing on teacher’s characteristics in Nigeria found out that teacher’s characteristics influenced teaching and learning in classrooms. The characteristics of teachers considered in the study are gender, age, educational attainment and teaching experience. In the findings of Clin Diagn Res (2017) it was discovered that the quality of education was overshadowed by the overall characteristics of teachers.

In recent times, the requirement of teacher’s effectiveness goes beyond just teaching to meet the obligatory demand for a living. The joy of every Biology teacher is to see his/her student succeed. Every student can learn, but may not be on same day or in same way. Observably, students could be grouped into; slow learners, fast learners and playful learners. And all are to be taught by a teacher in same class! This is where mentoring comes in. Mentoring in a school setting can be defined as a relationship between a subject teacher (mentor) and a student (mentee) whereby the mentor willingly invest quality time in the total development (academic and behavioral) of the mentee ( Olu-Ajayi, 2018). Since there are variations in human, teachers’ characteristics go a long way to effect success in mentoring students. Mentoring has been recorded to be effective in developing academic and behavioral attitude in students of various learning groups; According to Rhodes et al (2000) in ‘Agents of Change’ Mentoring encompass a series of activities and experiences that are designed to help youth to become socially, morally, emotionally, physically and cognitively competent. Furthermore positive perceptions of teacher-student relationships are consistently associated with increase in motivation, academic competence and achievements, school engagements, school value, and behavior adjustment. It is certainly conceivable that a mentor in a close trusting relationship with a youth could validate and support the child’s existing intellectual interests or encourage curiosity and motivate learning in new areas (Herrera, 1999). Also there is the need for teachers to possess some personal characteristics which to enable them become effective mentor.

**PURPOSE OF THE STUDY**

The study aims at investigating teachers’ characteristics as determinant to effectiveness in mentoring Biology students in secondary schools.

**RESEARCH QUESTIONS**

The question below was raised to guide the study:

Would there be joint influence of teachers characteristics (experience, gender, subject area and age) on effectiveness in mentoring students in Biology?

**HYPOTHESES**

There is no significant joint influence of teachers’ characteristics (experience, gender, subject area, age) on mentoring activities in Nigerian secondary schools.

**METHODOLOGY**

The study was descriptive survey in design. The population consists of all Biology teachers in public secondary schools in Ekiti State Nigeria. Population size was five hundred and twenty five (525) (Ekiti State Ministry of Education, 2017). The sample size having researched on Larry (2012) book on ‘ Research Methods and Methodologies in Education’ was one hundred (100) selected through simple random sampling technique.

**RESEARCH INSTRUMENT**

This consists of a questionnaire, titled ‘Teachers Characteristics and Mentoring Effectiveness’ (TCME) developed by the researcher to solicit information on teachers’ characteristics and effectiveness in mentoring students for success in Biology. The questionnaire, made up of three sections; (1) Bio-data, which sought information on teachers’ age, gender, discipline. (2) item to measure teacher’s subject skill and experience on the job (3) Knowledge on mentoring in teaching, having twenty items Likert type scale of Strongly Agree(SA) Agree(A) Disagree(D) Strongly Disagree(SD). The validity and reliability of instrument were carried out as speculated in ‘Introduction to Research Methods in Education’ by Keith (2013). The validity of the instrument was ensured by qualified Science Educationists and Guidance Counselors, while reliability was determined through test-retest method by administering the instrument to a group of teachers outside the sample within two weeks, collating their responses and comparing it with the aid of Pearson Product Moment Correlation analysis to obtain a coefficient value of 0.74 which was adjudged high enough to be adequate for the study.

**HYPOTHESIS**

There is no significant joint influence of teachers’ characteristics on mentoring activities in Nigerian secondary schools.

**Table 1: Multiple Regression analysis showing the joint influence of teachers’ characteristics on mentoring activities in Nigerian secondary schools**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta (β)		
(Constant)	48.699	1.954		24.917	.000
Teaching Experience	.129	.068	.268	1.907	.059
Age	.103	.069	.210	1.493	.138
Subject area	.487	.067	.891	7.229	.000
Gender	.148	.072	.309	2.048	.043

Multiple R=0.609, Multiple R<sup>2</sup>=0.370, Adjusted Multiple R<sup>2</sup>=0.346, F<sub>4,103</sub>=15.147, p=0.000  
p<0.01

The table revealed that there was significant joint influence of teachers’ characteristics on mentoring activities in Nigerian secondary schools (F<sub>4,103</sub>=15.147, p<0.01). The null hypothesis was rejected. Furthermore the table shows that all the variables of teacher’s characteristics will significantly contribute to effectiveness of teacher in mentoring

students for a total success in secondary school Biology. (F=35.506\*, p<0.05). The null hypothesis is rejected. The table showed that there was significant positive multiple correlation between the predictor variables (teaching experience, age, subject area and gender) and mentoring activities in Nigerian secondary schools (r=0.609, p<0.01).

The value of the coefficient of variability ( $r^2=0.307$ ) indicated that all the variables of teachers' characteristics jointly accounted for 37% ( $r^2 \times 100$ ) of the total variance in mentoring activities in Nigerian secondary schools while the remaining 63% unexplained variation was largely due to other variables not included in the model.

The regression result further indicated that the single best predictor of mentoring in Nigerian school was subject area ( $\beta = 0.891$ ). This was closely followed by gender ( $\beta = 0.309$ ) and teaching experience ( $\beta = 0.268$ ). The variable with the least contribution to mentoring in Nigerian secondary schools was age ( $\beta = 0.210$ ). The multiple relationships between the dependent and independent variables can therefore be given as follow:

$$Y = 48.699 + 0.129X_1 + 0.103X_2 + 0.487X_3 + 0.148X_4$$

Where

$X_1$  = Teaching experience

$X_2$  = Age

$X_3$  = Subject area

$X_4$  = Gender

## DISCUSSION

According to the results of this study, there was significant joint influence of teachers' characteristics on mentoring activities in Nigerian secondary schools, this agrees with Adeyemo (2005) who in his study on teacher's characteristics in Nigerian secondary schools discovered that teacher characteristics influenced teaching and learning in classrooms. The regression result further indicated that the single best predictor of Biology teachers' mentoring effectiveness in Nigerian schools was subject area. It was discovered that specialists in Biology had a higher influence on students than other unskilled teachers teaching Biology. This was closely followed by gender, which agreed with the study of Smith (2004) who claimed a strong relationship exist between the teachers' gender and academic performance of a child. It was discovered that the more years a teacher spend on the job, the better is he/she in effecting mentoring in students. This is in line with Richard (2012) who while discussing the effects of teachers' experience on students' learning found a relationship between teachers' effectiveness and their years of experience. The variable with the least contribution to mentoring in Nigerian secondary schools in this study was age. It was discovered that teachers of younger ages could be effective in mentoring. As rightly put by Chu (2003) while observing personality traits and teaching effectiveness of kindergarten teachers in Taiwan, this study further concluded that the influence of teachers' personal characteristics on the teaching and management of learners exist in order of magnitude

## CONCLUSION

Based on the results of the study, it was concluded that there is a significant joint influence of Biology teachers' characteristics on his/her mentoring students in Nigerian secondary schools.

## RECOMMENDATIONS

(i) Schools should encourage and support teachers to attend in-service training courses to beef up their qualification as it was established that there is a high influence of teachers' qualification on mentoring effectiveness.

(ii) Government intervention in supporting teachers and resources is critical for better mentoring result in Biology subject.

(iii) Attention to improve the professional skills of teachers in interaction with students through appropriate workshop and training courses is necessary

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