

INFLUENCE OF TEACHERS' CLASSROOM ATTENDANCE ON SENIOR SECONDARY SCHOOL STUDENTS' ACHIEVEMENT AND INTEREST IN BIOLOGY IN KARU LOCAL GOVERNMENT AREA OF NASARAWA STATE

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Abstract

The study examined the influence of teachers' classroom attendance on senior secondary school students' achievement and interest in Biology. It aimed at discovering ways of stimulating students' interest and achievements in Biology in Senior Secondary School. The research design used for the study was descriptive survey. The target population for the study was senior secondary school three students SSS3 in Karu LGA of Nasarawa state. Data were collected from 180 SSS3 students which served as sample from six selected schools in Karu LGA of Nasarawa state through simple random sampling. Two research questions and two hypotheses were generated to guide the study. The instrument used for the collection of data for the study was Teachers' classroom attendance questionnaire (TCAQ) developed by the researchers. The reliability coefficient of the instrument was 0.71 using Cronbach Alpha. The analysis used to analyse the data collected for study was descriptive statistics to answer the research questions while Analysis of Variance (ANOVA) was used to test the hypotheses. Scheffe was used as Post Hoc to ascertain the direction of the significance among the levels. Findings revealed that the extent to which teachers' classroom attendance for teaching and learning processes of senior secondary school biology students was therefore high. Also, the students whose teachers had high classroom attendance had highest achievement and interest to Biology. There was significant difference in senior secondary schools students' achievement in Biology, considering teachers' classroom attendance levels. There was significant difference in senior secondary school student's interest in Biology based on teachers' classroom attendance levels ($F(2, 177) = 30.514, P < 0.05$). It is therefore recommended that Biology teachers should sustain constant classroom attendance in order to improve students' academic achievement and interest in the subject. Principals should acknowledge and commend the heightened level of teacher presence in biology classrooms at the senior secondary school level.

Keywords: Teachers' Classroom attendance, Interest, Achievement, Biology, Senior secondary school students

Introduction

Biology serves as a channel for teaching students the ability to apply learning of science concepts and principles in solving every day's problems. This means that Biology remains one of the basic sciences whose teaching and learning is universally known to be efficient and successful, if only undertaken simultaneously with the help of adequate instructional resources and facilities. Mberekpe (2013) noted that Biology is a very important science subject and a requirement for further studies of other science related professional courses such as medicine, agriculture, pharmacy, biotechnology, genetic

engineering, etc. Ibrahim & Ibrahim (2019) also stressed that Biology is taught in schools in order to promote individual and societal development as seen in biotechnology and genetic engineering. Biology is the key to economic, intellectual, sociological, human resource development and well-being of any society (Mberekpe, 2013). Biology plays a vital role in the field of biochemistry, medicine, physiology, ecology, genetics, and molecular biology and as such, biology has been made a central focus in most human activities including being a solution to the problem of food scarcity, health, hygiene, family life, poverty eradication, management and conservation of natural resources, biotechnology, ethics, various social vices and as well lack of appropriate infrastructural materials. Biology is one of the science subjects that senior secondary students offer in senior secondary certificate examinations in Nigeria (FRN, 2004).

Ajaja (2001) also outlined the following as the contents of Biology: Cells and Molecules of life, Genetics and Evolution, Organisms and Environment Health, Defence and Diseases, Human Physiology: (Regulation and Control), Applied Ecology, Microorganisms and Human and Biotechnology. However, the problem remains that in some secondary schools in Nigeria, there is high rate of poor performance in the subject. Esiobu (2005) revealed that researches have shown that secondary school students are exhibiting low interest in Biology and that this low interest of students in Biology has been traced to poor achievement in examinations. For example according to the Vice Principal Academic of GSS Mararaba, in 2021 out of the total number of 89 students who registered Biology in GSS Mararaba, only 4 had distinction (A1-B3), 30 students had credit (C4-C6), 45 students had pass (D7-E8) while 10 had failure (F9). In 2022, out of the 66 students who sat for Biology in the same school, no student had distinction. However, 25 students had credit (C4-C6) 15 students had pass (D7-E8) while 26 failed (F9).

For us to advance scientifically and technologically, positive achievement in Biology at all levels of schooling is necessary. Unluckily, achievement of students in Biology at the end of the secondary school has not improved in the last decade (Umoinyang, 1999). Folorunso (2004) cited in Mberekpe (2013) has attributed poor achievement in Biology specifically to poor teachers' classroom attendance (Biology teachers' absenteeism) as well as shortage of sufficient Biology teachers due to poor funding of schools.

Miller (2008) opined that teachers' classroom attendance is an important prerequisite for learning to take place. Teacher absenteeism, therefore, represents a problem that reduces the opportunities for students to have interest in Biology thereby affecting their achievement in the subject. Miller (2008) who further stresses that this problem is greater in developing countries reaffirmed that teacher absenteeism seriously affects classroom consistency and as a result student achievement. The National Policy on Education (FGN, 2004) stresses the need for teaching and learning of science processes and principles. Teachers' classroom attendance and improvisation skills for teaching/learning of Biology in secondary schools cannot be overemphasized. This study therefore will focus on the influence of teachers' classroom attendance on senior secondary school students' achievement and interest in Biology.

Theoretical Framework

Piaget's theory of Constructivism and the Solow Effect theory of David Romer (2001) served as theoretical bases on which this study stands. Piaget's theory of constructivism asserts that students create knowledge and develop meaning on the basis of their experiences. Utilising experiences, the learners create the construction of new knowledge through accommodation and assimilation. Constructivism is the theory which enunciates that the students learn to create knowledge rather than just obtaining the information. As the students explore and interact with others, they create new

information and knowledge. It is a psychologically oriented method to learning that stresses individual and collaborative meaning construction (Wilson, 2002). The constructivist theory is created on the idea that students are active in their learning journey because the knowledge they gained is constructed based on their experiences. While relating with their teachers in the classroom, each student ruminates on their own experience and assimilates the new learning with their prior knowledge or schema (Kurt, 2021). For Solow Effect theory, the assumption is that class attendance is a good predictor of students' performance. Orazem and Gunnarsson (2001) added that the Solow Effect displays relationship between attendance in school and the academic achievement of the students as well as productivity.

Statement of Problem

The increasing rate at which secondary school students are exhibiting low interest in Biology have resulted in their poor performance in examination such as the Senior secondary school certificate examinations (WAEC and NECO). Umoinyang (2019), stated that achievement of students in Biology at the end of the secondary school has not improved in the last decade. The reason for the low interest is not far-fetched. Constant absence of Biology teachers in classrooms have been attributed as some of the causes for students' low interest in Biology. This is in line with the position of Ibrahim and Ibrahim (2019) as they maintained that the teaching of Biology cannot be done effectively without interaction between the teacher, students and the environmental resources. It is however, worrisome that some senior secondary schools suffer from poor Biology teachers' classroom attendance or absenteeism and dearth of sufficient Biology teachers. Despite concern by school administrators, parents and the government at large to forestall students' low interest in Biology, the problem still persists. It is therefore necessary to study the influence of teachers' classroom attendance on senior secondary school students' achievement and interest in Biology.

Research Questions

The following questions have been formulated to guide the study:

1. To what extent do teachers attend classroom for teaching and learning processes of senior secondary school biology students?
2. To what extent do teachers' classroom attendance levels influence senior secondary school students' achievement and interest in Biology?

Hypotheses

The following null hypotheses were tested in the study:

1. There is no significant difference in senior secondary school students' achievement in Biology considering the teachers' classroom attendance levels.
2. There is no significant difference in senior secondary school students' interest in Biology based on the teachers' classroom attendance levels.

Methodology

The research design used for the study was descriptive survey design. The population of this study is the entire SS three Biology students of Government and Private Senior Secondary School of Karu Local Government Area. However, due to time and financial constraint only the Six Senior Secondary School of Karu Local Government of Nasarawa State was studied namely: Government Secondary School Mararaba, Government Secondary School Aso-Pada, Government Secondary School Nyanya Gwandara, Lead way Academy New Nyanya, Dominion International Academy Aso and Aunty Alice International School Mararaba of Karu local government area of Nasarawa state. The researcher adopted probability sampling technique for this research work. The probability random sampling technique gives a member in the population an opportunity of being selected. Therefore, a total of 180

SS three Biology students made the sample.

The instrument used for this study was Teachers’ Classroom Attendance Questionnaire (TCAQ). The questionnaire contains four sections which contain question one to fifteen in which Section A is to collect the Bio-data of each participant, Section B collected data on teacher classroom attendance scale, Section C collected data on Biology Achievement Test and Section D collected data on student interest in biology. The instrument was pilot tested and derived the reliability coefficient of 0.71 using Cronbach Alpha. The researchers visited selected senior secondary schools in the Karu Local Government area and administered the questionnaire after obtaining permission from the administrator of each school. The data collected for this particular study was analysed using relevant statistical tools. The questions were answered using frequency counts, and descriptive statistics to answer research questions 1 to Analysis of variance (ANOVA) was used to test hypotheses 1 to 4. Scheffe post hoc analysis was utilized to ascertain pair comparison mean difference significance. All hypotheses were tested at 0.05 level of significance.

Results

The results of the study are presented as follows:

Research question one: To what extent do teachers attend classroom for teaching and learning processes of senior secondary school biology students?

Table 1: Descriptive of teachers’ classroom attendance of Biology lessons

Statement	Agree (%)	Undecided (%)	Disagreed (%)	Mean	Std. Deviation	Std. Error
Biology teachers come to class regularly	177 (98.3%)	-	3(1.7%)	4.09	.807	.060
My Biology teachers are always punctual in class	165 (91.7%)	-	15(8.3%)	4.04	.858	.064
I come early to Biology class and meet my teachers	166 (92.2%)	2(1.1%)	12(6.6%)	3.96	.704	.052
My Biology teacher provide advance notice when he/she missed a scheduled Biology class	162 (90.0%)	9(5.0%)	9(4.1%)	3.86	1.034	.077
My Biology teacher cancel their scheduled Biology class	153 (85.0%)	2(1.1%)	25(13.9%)	2.44	1.358	.101
My Biology teacher do provide substitute of teaching materials for us when he/she must miss a scheduled Biology class	58 (32.2%)	6(3.3%)	116 (64.5%)	3.81	.992	.074
My Biology teacher do attend class regularly because he has mastery of subject matter	155 (86.1%)	1(.6%)	24(13.4%)	3.00	1.382	.103

Biology teacher take students' attendance regularly	74 (41.1%)	15(8.3%)	91(50.6%)	4.08	.918	.068
My Biology teacher do not attend Biology lesson regularly because he don't have mastery of the subject matter	164 (91.1%)	-	16(8.9%)	2.56	1.427	.106
Biology teacher hardly missed a lesson	56 (31.2%)	9(5.0%)	115 (63.9%)	3.98	.930	.069
Biology teacher always present a well organize lesson plan	162 (90.0%)	1(.6%)	17(9.4%)	4.22	.713	.053
Biology teacher do snap test regularly to test our understanding	174 (96.7%)	-	6(3.3%)	4.02	.862	.064
My biology teacher lack method of teaching	165 (91.7%)	2(1.1%)	13(7.2%)	3.94	.763	.057
My biology teacher allows us to contribute during his period	56 (31.1%)	-	124 (68.9%)	3.94	.763	.057
Biology teacher ask questions after teaching us any topic to test our understanding	169 (93.9%)	1(.6%)	10(5.6%)	4.11	.442	.033
Weighted Mean = 3.61						

From Table 1, 177(98.3%) of the student agreed that Biology teachers come to class regularly while only 3(1.7%) disagreed. Also, 165(91.7%) of students agreed that Biology teachers are always punctual in class while 15(8.3%) disagreed. In addition, 165(91.7%) of the student agreed that they came early to Biology class and meet the teachers while 12(6.6%) disagreed. Furthermore 162(90%) of the students agreed that Biology teachers provide advance notice when he/she missed a scheduled Biology class and 9(4.1%) disagreed and 153(85.0%) of student agreed that Biology teacher cancel their scheduled of Biology class. 58(32.2%) of students agreed that Biology teacher do provide substitute of teaching materials for them when she/he must miss a scheduled Biology class while 116(64.5%) disagreed. While 162(90%) agreed that Biology teacher always present a well organize lesson plan while only 17(9.4%) of the students disagreed. Biology teacher do snap test regularly to test the student understanding as 174(96.7%) of students agreed while 6(3.3%) disagreed. Biology teacher lack method of teaching as 165(91.7%) of students agreed while only 13(7.2%) disagreed. Biology Teacher allow the student to contribute during his/her period as 124(68.9%) of students agreed while 56(31.1%) disagreed. Lastly, 169(93.9%) of student agreed Biology teacher asked questions after teaching them any topic to test their understanding while 10(5.6%) disagreed. Given that the bench mark was 2.5 and the weighted mean is gotten as 3.61. Since the weighted mean was higher than the bench mark, then the extent to which teachers' classroom attendance for teaching and learning processes of senior secondary school biology students was therefore high.

Research Question two: To what extent do teachers' classroom attendance levels influence

senior secondary school students’ achievement and interest in Biology?

Table 2: Descriptive of students’ achievement and interest in Biology by teachers’ classroom attendance levels

Variables	Classroom Attendance	N	Mean	Standard Deviation	Standard Error
Achievement in Biology	Low	48	16.31	6.109	.882
	Moderate	97	21.14	6.463	.656
	High	35	21.66	7.324	1.238
Interest in Biology	Low	48	52.06	5.237	.756
	Moderate	97	52.96	3.129	.318
	High	35	58.40	3.979	.673

Table 2 shows that the mean achievement score in biology of students whose teachers have low classroom attendance was 16.31 while that of students with moderate teachers’ attendance was 21.44. Biology mean achievement score of students whose teachers were of high classroom attendance was 21.66. This implies that the achievement of students with high teachers’ classroom was also high.

From Table 2 also, the mean interest score in biology of students whose teachers had low classroom attendance was 52.06 while that of students with moderate by teacher’s classroom student interest in biology was found to be 52.96. For students with teachers’ high classroom attendance, the mean interest score in Biology was 58.40. It was therefore discovered that the students whose teachers attend classes regularly showed highest interest to Biology.

Testing of Hypotheses

Hypothesis One: There is no significant difference in senior secondary school students’ achievement in Biology considering the teachers’ classroom attendance levels.

Table 3: ANOVA of students’ achievement in Biology by teachers’ classroom attendance levels.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	875.467	2	437.733	10.210	.000
Within Groups	7588.178	177	42.871		
Total	8463.644	179			

* = Significant at P < 0.05

As observed on Table 3, the F value of 10.210 was significant because P value of .000 was less than 0.05 at the degrees of freedom of (2, 177). Therefore there was significant difference in senior secondary school students’ achievement in Biology considering the teachers’ classroom attendance levels.

Table 4: Scheffe multiple comparisons of students’ achievement in Biology based on teachers’ classroom attendance levels

(I) Classroom Attendance Level	(J) Classroom Attendance Level	Mean Difference (I-J)	Std. Error	Sig.
Low Attendance	Moderate Attendance	-4.832*	1.155	.000
	High Attendance	-5.345*	1.455	.002
Moderate Attendance	Low Attendance	4.832*	1.155	.000
	High Attendance	-.513	1.291	.924
High Attendance	Low Attendance	5.345*	1.455	.002
	Moderate Attendance	.513	1.291	.924

*The mean difference is significant at the 0.05 level

The Post hoc result on Table 4 shows that there was significant difference in students’ Biology achievement between those who had low teachers’ classroom attendance (P = .000). Between students whose teachers had low classroom attendance and those that had high teachers’ classroom attendance, there was a significant difference in Biology achievement (P=.002). But there was no significant difference in students’ Biology achievement between students’ whose teachers had moderate classroom attendance and those with high attendance because P value of .924 is greater than 0.05.

Hypothesis Two: There is no significant difference in senior secondary school students’ interest in Biology based on the teachers’ classroom attendance levels.

Table 5: ANOVA of students’ interest in Biology based by teachers’ classroom attendance levels

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	954.064	2	477.032		
Within Groups	2767.048	177	15.633	30.514	.000
Total	3721.111	179			

* = Significant at P < 0.05

As seen on Table 5, F value of 30.514 was significant because P value of .000 is less than 0.05. Therefore, there was a significant difference in senior secondary school students’ interest in Biology based on teachers’ classroom attendance levels (F(2, 177) = 30.514, P<0.05).

Table 6: Scheffe Multiple comparison of students’ interest in Biology based on teachers’ classroom attendance levels

(I) Classroom Attendance Level	(J) Classroom Attendance Level	Mean Difference (I-J)	Std. Error	Sig.
Low Attendance	Moderate Attendance	-.896	.698	.440
	High Attendance	-6.337*	.879	.000
Moderate Attendance	Low Attendance	.896	.698	.440
	High Attendance	-5.441*	.780	.000
High Attendance	Low Attendance	6.337*	.879	.000
	Moderate Attendance	5.441*	.780	.000

* = Significant at P < 0.05

Table 6 shows that there was significant differences in senior secondary school students’ interest in Biology between teachers that had low classroom attendance and those that had high classroom attendance since P value .000 which is greater than 0.05. But there is no significant difference in students’ Biology interest between teacher that has moderate classroom attendance and low classroom

attendance because P value of .000 is less than 0.05.

Discussion of Findings

It was found that the extent to which teachers' classroom attendance for teaching and learning processes of senior secondary school biology students was therefore high. This is in consonance to Merano (2019) that reported that students with teachers absent less than 10 days, compared to those who teachers had been absent for more than 10 days, performed at a higher academic achievement on mathematics outcome measures and after adjusting for special education status, there were no statistically significant differences based on academic achievement in reading. This finding contradicts the point by Obenobe (2017) cited in Akparobore (2018) that opined Biology teachers should cultivate good habit of attending and punctuality to classroom. It also corroborates Imoniri (2022) that, increases in all the attendance sub-variables are significantly associated with an increase in the students' Physics academic achievement. Biology teachers' attendance in classes would definitely give the opportunity to cover the curriculum scheduled for each term and also deliver instructions in clear terms. Students also have ample time to ask teachers questions on the areas teaching that are not clear to them and leaving no doubts on the subject matter exposed to them.

It was also find out that there was a significant difference in senior secondary school students' achievement and interest in Biology based on teachers' classroom attendance levels. This implies that the higher the teachers classroom attendance the better the students' achievement in Biology. This is contrary to Hassan and Jabeen (2018) that found that teacher absenteeism rate has a greater influence on the achievement of the student when the all other factor remaining constant. Interest of students is not easily created except teachers make themselves available in the classroom to make the environment friendly by the physical presence and ensure effective teaching and learning processes

Conclusion

The study looked at the influence of teachers' classroom attendance on senior secondary school students' achievement and interest in biology. It is obvious from this research that classroom attendance is pertinent to students' achievement and interest in Biology. When Biology teachers attend classes regularly, the academic achievement and interest were positively influenced.

Recommendations

In view of the findings of the study, the following were recommenced:

1. Biology teachers should sustain constant classroom attendance in order to improve students' academic achievement and interest in the subject.
2. Principals should acknowledge and commend the heightened level of teacher presence in biology classrooms at the senior secondary school level.
3. Biology teachers should be recognized having good classroom attendance or provide a better gift, such as a reward.
4. Teachers whose classroom attendance is low should be encouraged and monitor by their Heads of Departments and sanctions to be meted where necessary.
5. Students class representative should effectively use teachers' classroom attendance register to show the regular attendance of Biology teachers in the class.

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