

PREDICTING CLASSROOM ATTENDANCE AND STUDENTS ACADEMIC ACHIEVEMENT IN PHYSICS IN CALABAR METROPOLIS, CROSS RIVER STATE, NIGERIA

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Abstract

The study focused on predicting class attendance and students' academic achievement in Physics in Calabar Metropolis, Cross River State, Nigeria. The study area is Calabar Metropolis. Senior Secondary School Three (SSS 3) Physics students were used. A research question and a hypothesis were drawn for the study. The instrument used for the study was the factors Influencing Class Attendance Questionnaire (FICAQ) and Physics Achievement Test (PAT). The population of the study was 3553 Science students, 240 were used as the sample size. A 5-point Likert scale was used for the responses. The data were analyzed using frequency distribution, descriptive statistics, and inter-variable Pearson Product Moment Correlation Coefficient, and multiple linear regression analyses. The results indicate that individually, school, class, tutorial, and Physics attendance make significant contributions to Physics students' academic achievement but practical class attendance does not. Collectively, the results showed that school, Physics practical, and tutorial class attendance have a significant influence on Physics students' academic achievement at 45.4%. Based on the results it was recommended amongst others that teacher should monitor students' attendance as well as their activities in the class.

Keywords: Predicting, Class attendance, Academic achievement, Physics, Cross River State, Nigeria.

INTRODUCTION

The role of the classroom cannot be over-emphasized. This is because, without the classroom, there will be no quality teaching which will greatly affect students' quest for academic excellence. To this end, students not attending classes has been regarded as a major problem facing the education system. A student, who is not in the class when others are in the class receiving lessons, is considered to be absent, without permission except in a situation when

such a student steps out or stays back after obtaining proper permission from the teacher. It is so disheartening that most times students are found loitering outside the school premises or within the school premises when their counterparts are in the classrooms receiving lessons. Most worrisome in most cases, is when senior students or students in examination classes are involved. These are students who by virtue of their levels (higher classes) are supposed to advise the junior students on the importance of class attendance. To make matter worse, some of these senior students are science students who should have known the benefits of class attendance. Science is made up of Physics, Chemistry Biology, and Mathematics. These subjects involve practical as well as theory sessions. In view of the above statement, the researcher is not trying to insinuate that only science students are important nor is the researcher suggesting that they are the only ones who carry out practical activities in schools, but that this is the researcher's interest in this work.

A student's behavior is made up of what he or she does in the school, one of which is class attendance. If a student fails to attend a class, he or she definitely pays for it in one way or another in his or her academic pursuit. A student may be in school and still decides not to be part of the teaching and learning activities in the classroom; such as a student is still noted as being absent. Keter (2013) defines absenteeism as a habit of staying away from school without providing a genuine or any reason for not attending class. It is a truant behavior that negatively affects the performance of students. Recently, one must also think about the effect of security as a factor influencing students' absenteeism in school, as it affects their academic achievement. Seyma, Zeynep, and Abdulrahman (2016) mentioned the following as factors that might be the cause of absenteeism among students; the family, administrator, and teacher behaviors in the school setting, the students as well as the environment. All these and much more affect students' academic achievement. Absenteeism involves missing out on important discussions in the classroom. This research work focuses on factors such as school attendance, class attendance, and practical as well as tutorial class attendance as challenges to be considered hindering Physics academic achievement among senior secondary school students.

A study by Sharma, O'Byrne and Alberto (2005) revealed that the majority of students who missed Physics lessons for one reason or another have problems coping during examinations. Such students apart from missing marks for attendance also have a problem answering some of their examination questions properly. Some students may default in-class attendance due to ill health, some are caregivers, and some are sent home for not paying their

school fees, some are truants (Sharma et al, 2005). These and many more are issues that may affect students attending classes. Those students who attended tutorials score more marks in examinations than those who attended fewer or few classes (Sharma, et al, 2005).

Franklin, Harris, and Allen-Meares (2008) explained that elementary school and high school laws may require compulsory attendance of students in the class, while students at higher levels of education may face a penalty from their lecturers or the institution. Franklin et al (2008) also pointed out that classroom attendance may be mandatory, and poor attendance by students in the class may affect their grades or other evaluation. Furthermore, poor attendance may also reflect problems in students' personal situations, and it is an indication that students are not having the required knowledge and expected skills needed for future success. A study conducted by Abaidoo (2008) revealed that among others, regular class attendance, hard work, and interest in a subject are factors contributing to the academic performance of students. Abaidoo recommended that students should study and attend classes regularly.

Students who attend class more regularly have more tendencies to obtain better and higher marks, higher retention rates, and a more satisfying educational experience in their academic pursuits (Muir, 2009). Such were the results obtained from the research work of Oghuvbu (2010) which showed that the mean scores of students who attend class were 68% and their academic achievement was 66%. The finding showed a positive correlation between class attendance and academic achievement, thus showing that students' academic achievement is influenced by their class attendance. The findings of Aden, Yahye, and Dahir (2013) revealed that there is a moderate positive relationship between student attendance and academic achievement when they conducted research on the effect of student attendance on their academic achievement.

Ibeh, Onah, Umahi, Ugwuonah, Nanchi, and Ekpe (2013) explained that a lot of students have negative attitudes toward physics, because of their truancy nature, lateness to school, and avoidance of punishment. They contend that a truant student is one who absents oneself from class or school functions without permission. They also pointed out that, students absent themselves from class since they prefer staying somewhere or doing something else during school hours. In view of the above, it is not good that a student misses classes and so misses out on what is being taught in the class. This may have a negative influence on the academic achievement of such students whether they are slow or fast learners. Latif (2013) noted that class attendance has a significant impact on students' grades. Regular attendance in class is essential for students' success in their future professional lives (Kearney & Graczyk, 2014), they

explained is achieved through work-related such as persistence, problem-solving, and the ability to work with others to accomplish goals. Similarly, Demir and Akman (2015) noted that improved class attendance is a direct indicator, rather than a determinant of students' academic achievement.

Vidyakala and Vaishnavi (2015) in their work on factors influencing students' absenteeism in school explained that class attendance is continuity in students' learning process that brings an adverse effect on their academic achievement when students skip lessons. Amalu and Abang (2016) also emphasized the importance of regular class attendance as being a prerequisite for acquiring skills and knowledge for academic success. Among others, Amalu and Abang in addition to what other researchers have listed, also mentioned lack of interest, illness, and pampering from the family as causes of absenteeism among students, and suggested that parents and students should be counseled on the effects of absenteeism on school academic achievement as it is a long term consequence on national development.

Zekeriya and Ezgi (2017) posit that the importance of class attendance has been underestimated in many educational settings. For this reason, it is necessary to obtain subject matter mastering. This, they explained, following the result of the study they conducted which revealed that; there is a meaningful relationship between class attendance and learning performance. Students with low absenteeism rates perform better. They further suggested that students will only learn academically if they do not come to school to socialize, or complete work for other classes. That students must participate in their educational activities and take responsibility for their learning, since according to them, class attendance does not guarantee success, but can enhance the probability of academic success. Teachers should also play their own part by presenting information and exciting material that keep students interested and engaged (Zekeriya & Ezgi, 2017). Absenteeism is a critical cause for concern such that its' contributing factors adversely lead to poor academic achievement, grade repetition, and dropout (Kelly, 2018).

Statement of the problem

The problem of class attendance is one of the contemporary problems suffered by students in their academic pursuit, which needs to be looked into for the benefit of both teachers

and the students. Being present in the classroom and taking part in relevant activities is of immense importance in the academic achievement of the students. Absenteeism remains a major school problem such that students not showing up in class have the consequence of draining human capital development (Ada, Arop&Okute, 2019). This has caused many setbacks to those students who are found wanting in this problem. The adverse effects of this situation are not relegated to any particular stage in a students' educational pursuit. Due to this problem, the researcher attempts to investigate the causes of class absenteeism among physics students and how it has affected their academic achievement. Whatever a student plants today, will be reaped tomorrow. After all, education is about reaping what one sows.

Purpose of the study

The purpose of the study is to investigate:

1. The extent to which class attendance predicts senior secondary school Physics students' academic achievement.

Research question

The following research question was used for the study

1. To what extent do school, physics class, practical class, and tutorial class attendance collectively and individually predict senior secondary school student's academic achievement in Physics?

Research hypothesis

The following hypothesis was drawn for the study.

1. Physics class, practical class, and tutorial class attendance have no significant collective and individual relative influence on senior secondary school student's academic achievement in Physics.

Methodology

The research study was carried out among senior secondary school Physics students in Calabar Metropolis, Cross River State. A descriptive survey method was adopted for the study. One research question and one hypothesis were used for the study. Senior secondary school three (SSS3) Physics students were the population of the study and a stratified random sampling technique was used to select a sample of 240 students that were used. 25 items were drawn on the influence of students' class attendance, while 40 items were drawn for Physics Achievement Test. The result was analyzed using frequency distribution, descriptive statistics, inter-variable Pearson Product Moment Correlation Coefficient, as well as multiple linear regressions analysis.

Results of Findings

The result of the study was presented in line with a formulated hypothesis and tested at 0.05 level of significance. The frequency distribution of the students’ Physics Achievement Test was done using frequency count and simple percentages. The results are shown in Table 1.

Table 1: Frequency distribution of students’ Physics academic achievement test

Score	Frequencies	Percentage
10	18	7.50
12	35	14.58
15	35	14.58
18	28	11.67
19	25	10.42
25	9	3.75
26	11	4.58
28	8	3.33
30	11	4.58
32	14	5.83
34	9	3.75
36	13	5.41
37	15	6.25
38	9	3.75

Source: Field work 2022

Results from Table 1 show that 240 Physics students responded to the 40 items on the Physics Achievement Test constructed on the questionnaire. 141 Physics students scored below 20points, that is, 58.75%, while 99 studentsscored above 20points, which is 41.25%.

The descriptive statistics of mean, standard deviation, and standard error, minimum, maximum were computed for the five study variables – school attendance, class attendance, practical class

attendance, tutorial class attendance, Physics academic achievement of the whole study sample. The results are given in Table 2.

Table 2: Descriptive Statistics of the five study variables

Study variable	Mean	SD	SE	MIN	MAX
School attendance	18.100	5.312	.343	6	25
Physics class attendance	15.958	5.926	.383	6	25
Practical attendance	13.050	5.628	.363	6	22
Tutorials attendance	12.808	6.332	.409	6	22
Physics achievement	23.113	9.294	.600	8	38

The results in Table 2 show that the mean school attendance ($\bar{X} = 18.100$) is the highest, followed by the mean of Physics class attendance ($\bar{X} = 15.958$), then the mean of practical attendance ($\bar{X} = 13.050$), and the least is mean of tutorial class attendance ($\bar{X} = 12.808$). These differences were not tested for significance because such a test fell outside the scope of the study. The inter variable Pearson Product Moment Correlation Coefficient, was computed for all possible pairs of the five study variables, together with their associated P-values. The results are given in Table 3.

Table 3: Inter-variable Pearson Product Moment Correlation Coefficients.

	School Attendance	Class Attendance	Practical Attendance	Tutorial Attendance	Physics achievement
School attendance	1**	.723*	.418*	.401*	.634*
Physics class attendance	.000	1	.519*	.473*	.559*

Practical attendance	.000	.000	1	.698*	.322*
Tutorials attendance	.000	.000	.000	1	.423*
Physics achievement	.000	.000	.000	.000	1

***Significant at .05 level. P <.05**

The results in Table 3 shows that all the correlation coefficients are positive ($.401 \leq r \leq .723$) and significant ($P = .000 < .05$). This means that an increase in any one of the variables is significantly associated with increases in all the other variables. More specifically, increases in all the attendance sub-variables are significantly associated with an increase in the students' Physics academic achievement. To test the hypothesis that school, physics class, practical class, and tutorial class attendances have no significant collective and individual relative influence on students' academic achievement in Physics, multiple linear regressions analysis was applied. The F-ratio test was used to test for the significance of the overall influence model while the test was used to test for the significance of the relative contribution of each variable in the model. The results are given in Table 4.

Table 4: Regression of students' academic achievement in Physics on the four class attendance variables

R – Value = .674 Adj. R – squared = .445					
R – squared = .454			Std. Error = 6.925		
Source of Variation	Sum of squares	df	Mean squares	F-value	P-value
Regression	9374.242	4	2343.561	48.869*	.000
Residual	11269.720	235	47.956		
Total	20643.962	239			
Predictor variable	Unstandardized Coeff B	Std. Error	Std. Coeff	t-value	p-value
Constant	43.954	1.651		26.620*	.000
School attendance	.812	.123	.464	6.619*	.000
Class	.277	.117	.117	2.370*	.019

attendance					
Practical	.227	.117	.138	1.951	.052
attendance					
tutorial	.366	.101	.249	3.636*	.000
attendance					

***Significant at .05 level. P < .05**

Results in Table 4 show that an R-value of .674 was obtained resulting in an R-squared value of .454. This means that the variation in attendance sub-variables collectively account for about 45.4% of the total variation in Physics students’ academic achievement. The P-value (.000) associated with the computed F-value (48.869) is less than .05. Consequently, the null hypothesis was rejected. This means that school, Physics class, practical and tutorial class attendance have a significant collective influence on senior secondary school Physics students’ academic achievement. The P-values (.000 & .019) associated with the computed t-values (26.620, 6.619, 3.363 & 2.370) for the regression constant (43.954), school attendance, tutorial class attendance, and Physics class attendance respectively, are less than .05, while the P-value (.052) associated with the computed t-value (1.951) for practical class attendance is greater than .05. This means that the regression constant, school attendance, tutorial, class attendance, and Physics class attendance make a significant contribution to the prediction of senior secondary school Physics students’ academic achievement, but the practical class does not do so significantly. The influence model may be written mathematically as $y = 43.954 + .812x_1 + .277x_2 + .277x_3 + .366x_4$

Where x_1 = School attendance, x_2 = Physics class attendance, x_3 = Practical class attendance, x_4 = Tutorial class attendance, y = Physics academic achievement.

Conclusion

The study determining predicting class attendance and students’ academic achievement in Physics in Calabar Metropolis, Cross River State, Nigeria. The results show that 240 Physics students undertook the Physics Achievement Test, 141 of the students scored below 20 marks which are 58.75%, while 99 students scored above 20 marks which is 41.25%. Of the variables studied, school attendance has the highest mean, followed by Physics class attendance, while tutorial attendance has the least mean. In testing the variables individually, school, class, tutorial, and Physics attendance contribute significantly to Physics students’ academic achievement but practical class attendance. When the results are correlated collectively, the variables have a

significant influence on Physics students' academic achievement, consequently the rejection of the null hypothesis. Academic achievement in Physics comes as a result of success and accomplishing specific aims and objectives through students' active participation in school, and attending both practical and tutorial classes. The result indicates that students who attend Physics class regularly perform better than those students who do not and they have higher academic achievement. This result is in line with the findings of Sekiwu, Ssempala, and Frances (2020) which indicated that there is performance variation between those who attend class regularly and those who are chronic absentees.

Recommendations

The following recommendations were drawn from the study

1. Teachers should do their possible best to monitor students' attendance in their class, and take attendance seriously.
2. Government should strengthen the law prohibiting students from loitering outside the school during school hours.
3. Parents and guidance should monitor their words as they go to school and also pay the school fees when due. Parents should be advised to attend Parents Teachers' Association meetings.

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