

STUDENTS' PERCEIVED INFLUENCE OF CLASSROOM PSYCHOSOCIAL ENVIRONMENT ON SENIOR SECONDARY STUDENTS ACADEMIC PERFORMANCE IN BIOLOGY, BAUCHI METROPOLIS, NIGERIA

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This Study investigated the students' perceived Influence of Classroom Psychosocial Environment on senior secondary II Students Academic Performance in Biology. Bauchi, Nigeria. An expo- facto research design was adopted for the study. The Population of the study comprises of all four thousand five hundred (4500) SS II Biology Students in all the twenty-three (23) Senior Secondary Schools in Bauchi metropolis, Bauchi state. stratified simple random sampling techniques was employed to draw a sample size of 332. The instrument for data collection was an adapted Questionnaire called What is Happening in the Biology Class questionnaire (WHBC). Cumulative Biology examination scores of the students were also used to determine their performance in Biology. Data were analyzed using mean and standard deviation, and Multiple regression analyses. The findings from the study indicate that the perception of classroom psychosocial environment of biology senior secondary school students in Bauchi metropolis is moderate, and perceived classroom psychosocial environment does not significantly predict students academic performance. Based on the findings the researchers recommend that Workshops, seminars, conferences, and short time courses should be organized for Biology Teachers in order to equip them with modern strategies to maintain and sustain good classroom psychosocial environment.

Keywords: Classroom Psychosocial Environment; Academic Performance, Perceived influence

INTRODUCTION

Science provides a body of knowledge used in addressing various forms of human, material and environmental problems. Science is studied and practiced in the school system and in every part of the world including Nigeria. Nigeria is a developing nation with increasing demand for science based skilled manpower (Ifeobu, 2014). To achieve this, there is a need to start with learning and practical application of science subjects such as Biology, Chemistry, Integrated science and physics at Secondary Schools level. Among these subjects Biology is the most popular science subject offered by both sciences oriented and art based students in Senior Secondary School Certificate Examination (S.S.C.E) in Nigeria (Okoye, 2018). Biology stands a central position because the subject is an integral science subject which provides content in the training of students that would want to study medicine, nursing, pharmacy, forestry and fisheries Biochemistry, Physiology and Ecology in the tertiary institutions (Ifeobu, 2014). Earlier, Nwosu (2005) reported that teaching of biology enables students to develop the ability to apply Science concepts and principles in solving everyday life problems. It is therefore a very important subject in most human activities. Despite this the students academic performance in Biology is not encouraging this problem have been observed by some researchers that some factors inside the classroom could influence students social behavior which at most time affect their performance. These factors may include the way students perceive their interpersonal relationship in the classroom learning environment. Muchera (2008), Igwebuike & Oriafor (2012) indicate a strong association between perception of learning environment and student's achievements, for learning of Biology to be effective, there is need to have conducive classroom environment for learning.

A conducive classroom environment is very important because it does not only serve the students emotional development needs but also encourages intellectual improvement, and gives students opportunities to carry out experiments, exploration and self-knowledge. This is in line with the objective of science teaching as stipulated in the National Policy on Education (FRN, 2013) which stated that classroom activities should be child centered approach that would allow learners to interact with the teacher and instructional materials and these could be achieved through a good classroom psychosocial environment. Psychosocial environment is the type of environment were psychological and social

factors exist. This involves existence of elements like Students cohesiveness, teacher support, Investigation, Involvement, Task orientation, cooperation and Equity. Psychosocial environment is therefore the combination of feelings, thoughts, emotions and their social relationship in the classroom environment. The way students perceived their classroom psychosocial environment may affect their comfort and also their ability to learn. Comfortable students might likely get much information compared to those who are uncomfortable. Unfavorable classroom learning environment may also discourage the learner's relationship in classroom environments and they become less willing to learn, which in turn affect how they relate with their teachers and other students in the class.

Student cohesiveness (SC) is the extent to which students are friendly and supportive of each other. cohesiveness within classroom is a great and also an aspect that need to be examine in order to established positive social learning environment students who learn cohesively or learn together perform well in school more than student who does not learn cohesively. In a classroom where there is student's cohesiveness the students value themselves, involve and also care for each other in the learning environment and this could also be achieved if there is a teacher support.

Teacher support (TS) is also one of the important aspects of classroom psychosocial environment that may influence learner's academic achievement, teacher support measures the amount of help concern, and friendship the teacher provides for the students (sharma, 2016). That is why Ryan and shin (2012) see teacher support as the perceptions of students that their teacher likes them and cares about them as an individual, Hughes (2008) noted that the relationships between students and teachers that are characterized by support and high levels of warmth and low levels of conflict are correlated with greater student academic achievements. when there is a teacher support in a classroom environment, the students tend to actively involved in the lesson.

Involvement(IV) measures the extent to which students pay attention and show interest in the activities in the classroom. The more teacher involves the students the higher the teaching and learning process which also bring about higher expectations of learning outcome, this is why chickering&Gamson (2014) stress out that teachers that normally involve the students are more likely to have higher level of career success and this also bring about a better learning outcome,

Investigation (I) measures the extent to which there is emphasis on the skills and enquiry and use in problem solving and investigation all those vital activities which are highly needed to maintain a supportive and orderly atmosphere. It includes planning and preparation of teaching and learning materials, organization of materials the classroom,

Task orientation(T) measures the extent to which the activities of the class are centered on accomplishment of specific academic objectives task orientation is also an important aspect of effective teaching since its related to how much time a teacher spends on a chosen instructional task. (Dynnson, 2009) earlier stated that the more continuous time spent concentrating on learning task the higher the possibility of learning success. Earlier Ogbbuanya, Attahiru & Momngu (2017) in their study suggested that when there is more task orienting exercise in the classroom there will be cooperation and the students will be socially related.

Cooperation(C) measures the extent to which the students cooperate during activities. cooperation can be seen as working together to accomplish a shared goals within a cooperative activities, it is believed that students benefit a lot when there is good cooperation in the classroom this also serves as a great tool that can be used in improving students achievement in any classroom environment (Ghaith, 2012). All those element could be achieved if there is equity in the learning environment

Equity(E) is seen as giving students what they need, treating them equally. When teachers listen to students and respect them and there is classroom mutual understanding between teacher and students a productive learning environment might be formed. This also measure the extent to which teacher treats students equally, including distributing praise, questions and opportunities to be included in discussion. However for equal participation all classroom activities should be accessible for all students without discrimination, male and female should be treated equally to ensure full participation to this may improve their achievements (Mucherah 2008),

Classroom has become an important place for educational research and the psychosocial dimension has been researched widely in developing countries. The report provide convincing evidence that quality of classroom environment is a significant determinant and predictor of students learning outcome (Ozkal, Tekkya, Sungur and Cakiroglu 2009). According to Khine, Fraser, Afari, and Kyaw, (2018) Learning environment research in relation to the psychosocial angle of the classrooms has been strongly established as a field of study for almost half a century. Over the past years, learning environment research has proven useful in addressing many educational issues and has highlighted that psychosocial factors within the classroom are important in creating productive learning environments but despite the importance of psychosocial factors in the classroom environments, little is known about its influence in the field of biology especially in Bauchi, this study therefore intends to find out the students perceived influence of Classroom Psychosocial Environments on Senior Secondary II Students Academic performance in Biology, Bauchi metropolis, Nigeria.

Aim and Objectives

The aim of the study is to investigate students' perceived influence of Classroom Psychosocial Environments on Senior Secondary II Students Academic performance in Biology, Bauchi metropolis, Nigeria. Specifically, the objectives of this study seek to determine;

1. The biology student's perception of their overall classroom psychosocial environment?

2. The extent to which the measures of perceived classroom psychosocial environment. (SC,TS, I, IV,T,C and E) predict student academic performance.

Research Questions

The following research questions were stated to guide the study:

1. What are the Biology students' perception of their overall classroom psychosocial environment?
2. To what extent do the perceived classroom psychosocial environment (SC,TS, I, IV,T,C and E) predict student academic performance ?

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

H₀₁: the perceived classroom psychosocial environment of Biology students' do not significantly differ in their prediction of student's academic performance

Methodology

The research design adopted for this study was ex-post facto research design, also known as Casual comparative according to Fraenkel & Wallen, (2009). Ex-post factor research design attempts to establish a cause or consequences of differences between groups in which the independent variable is not under the control of the researcher. The choice of the design is based on the fact that the study investigates the influence of independent variable (perceived classroom psychosocial environment, school type and gender) on dependent variable (academic performance). Which already exist without manipulation of variable

The study was conducted in Bauchi Metropolis which is within Bauchi local government area Bauchi State Nigeria The population for this study was the entire SS II Biology students consisting of both Males and Females in all the 22 public senior secondary schools in Bauchi metropolis with population of (4500) Senior Secondary School II Biology Students. (Bauchi Ministry of Education 2018). The sample size for the study was 332 SSII Biology students from 7 public schools in Bauchi metropolis, Stratified Random sample Techniques were used to select the sample, The instrument for data collection in this study is

What is happening in the Biology class (WHBC) This instrument was adapted from What is happening in this class (WIHIC) questionnaire developed by Fisher and McRobbie (1996)

Part A of WHBC questionnaire include the demographic information of the respondent which include gender, name of school, type of school. Part B of consist of 56 items that are divided equally to measure the following component of psychosocial classroom environments

Students Cohesiveness (SC) , Teacher support (TS),Investigation (I); Involvements (IV) Task orientation (T)Cooperation;(C) Equity: (E) Each item from the instrument is responded to on a five-point frequency scale of; 1.Almost Never, 2. Rarely 3. Sometimes, 4.Often and 5.Almost always

Cummulative Examination Scores for SS II Biology students which was retrieved from the sample schools to measure Biology student's performance in biology.

Reliability test was carried out to measure the internal consistency of the instrument using Cronbach's alpha reliability, according to Hinton, McMurray (2017) the alpha score above 0.75 is generally considered as high reliability while value of 0.50 to 0.75 is considered moderate reliability while scores less than 0.50 is considered low reliability. For the instrument of present study the value obtained was 0.79 which is considered high reliability value. cronbach alpha was considered appropriate because the values were on a continuum level. Mean and standard deviation was used to answer Research question 1 stated for the Study, multiple regressions was used to answer research questions 2, and its corresponding hypothesis The null Hypotheses was tested at 0.05 level of Significance

RESULTS AND DISCUSSION

Research question 1

What are the Biology students' perceptions of their overall classroom psychosocial environments?

Table 1 shows the summary of the mean scores of secondary schools biology students' perception of their psychosocial environment in biology classroom. The result indicated that on the seven levels of perceptions of the psychosocial environments of the biology classroom, equity has the highest mean of 3.40, teachers' support 3.32, students'

cohesiveness and cooperation 3.26 each, involvement and orientation 3.24 each while investigation 3.05. This implies that students perceived equity more than the other aspects while investigation was the least among them. Moreover, the standard deviation for all the scales is small which indicates that there is little variation in the students' perceptions.

Table 1: Mean Perceptions Scores of Students Classroom Psychosocial Environment

S/No	Students' Perceptions	Mean	Standard Deviation	Decision
1	Students' Cohesiveness	3.26	.77	Moderate
2	Teachers' Support	3.32	.75	Moderate
3	Investigation	3.05	.68	Moderate
4	Involvement	3.24	.65	Moderate
5	Task Orientation	3.24	.78	Moderate
6	Cooperation	3.26	.77	Moderate
7	Equity	3.40	.81	Moderate
Grand Total		3.25	.57	Moderate

Decision rule: Mean > 3.5 great perception, < 3.5 moderate perception, < 3 low perception

Research question 2

To What extent do the measures of perceived classroom psychosocial environment (SC, TS, I, IV, T, C, E) predict student's academic performance. How much variance in academic performance can be explained by classroom psychosocial environment?

The corresponding hypothesis stated that The 7 component of perceived classroom psychosocial environment (SC, TS, I, IV, T, C, E) do not differ in their prediction of students academic performance

From the model summary table 2, the R Square value is 0.31 (3.1%) indicating that only 3.1 percent of the variance in the exams scores is explained by the model which includes the independent variables SC, TS, I, IV, T, C and E. this result is however not statistically significant as from the ANOVA table 3 a p-value of 0.180 was observed.

Table 2 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.175 ^a	.031	.010	12.998

- a. Predictors: (Constant), Equity, Investigation, Student Cohesiveness, Teacher Support, Cooperation, Involvement, Task orientation
 b. Dependent Variable: EXAM SCORE

Table 3: Anova Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1727.785	7	246.826	1.461	.180 ^b
	Residual	54739.092	324	168.948		
	Total	56466.877	331			

a. Dependent Variable: EXAM SCORE

b. Predictors: (Constant), Equity, Investigation, Student Cohesiveness, Teacher Support, Cooperation, Involvement, Task orientation

Evaluating each of the independent variables in the model for its contribution in the prediction of academic performance. From the coefficient Table 7, the Beta value in the Standardised coefficients were used to compare the contribution of each independent variable. In the table, the largest Beta Coefficient is 0.142 which is for student cohesiveness. This means that only one variable made the strongest unique contribution to explaining the scores of the students and the contribution is statistically significant (0.049). The beta values for the rest of the variables are less than that of student cohesiveness and thus not statistically significant as all their $p > 0.05$.

Summary Interpretation of Hypothesis 1

A standard multiple regression analysis was conducted to assess the ability of seven classroom psychosocial environment measures (SC, TS, I, IV, T, C and E) to predict students academic performance. Preliminary analyses were carried out to ensure no violation of assumptions of normality, linearity and multicollinearity. the total variance explained by the model as a whole was 3.1%, $F(7, 324) = 246.83$, $p > .05$. In the final model, only one classroom psychosocial component measure was statistically significant, with a higher beta value ($\beta = 0.142$, $p < .05$)

Table 4: Coefficients Table

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	45.575	4.256		10.708	.000	37.202	53.949					
Student Cohesiveness	2.511	1.269	.142	1.978	.049	.014	5.008	.134	.109	.108	.582	1.719
Teacher Support	-1.092	1.282	-.062	-.852	.395	-3.613	1.429	.041	-.047	-.047	.558	1.793
Investigation	1.108	1.298	.058	.854	.394	-1.444	3.661	.104	.047	.047	.647	1.546
Involvement	1.496	1.553	.078	.963	.336	-1.559	4.551	.113	.053	.053	.462	2.166
Task orientation	.954	1.455	.057	.655	.513	-1.909	3.816	.092	.036	.036	.400	2.500
Cooperation	-.765	1.298	-.045	-.590	.556	-3.318	1.788	.062	-.033	-.032	.510	1.961
Equity	-1.271	1.335	-.079	-.952	.342	-3.897	1.355	.037	-.053	-.052	.431	2.319

a. Dependent Variable: EXAM SCORE

The findings of the research question 1 revealed the perception of classroom psychosocial environment of biology students is moderate this results of the analysis indicate that students perceived equity more than the other aspects while investigation was the least among them. The low mean observed for investigation would be partly explained as due to inadequate attention given to practical, experiments and laboratory work. On a general note the moderate mean observed is an indicative that little need to be done by both the students and biology teachers to ensure a great psychosocial environment in biology classroom. However, since the overall mean score is above 3.0 this implies there is a better classroom psychosocial environment in senior secondary school of Bauchi Metropolis. The findings from this study agree to that of kipnigetch (2017) who also revealed that perception of students was fairly positive in chemistry classroom psychosocial environment. However the finding of this study disagrees with that of Peter (2014) who reported High perception of classroom psychosocial environment in physics classroom.

The findings of research questions 2 revealed that the seven component of the perceived classroom psychosocial environment (SC, TS, I, IV, T, C, E) does not predict Academic Performance The result indicate only 3.1% of the perceived classroom psychosocial environment account for student Academic Performance the findings also revealed that the seven component of the perceived classroom psychosocial environment differs in the prediction of students performance with only one variable which is student cohesiveness (SC) making the highest contribution which is statistically significant otherwise the remaining 6 variables are statistically not significant. Therefore this can be clearly stated that the perceived classroom psychosocial environment do not predict student Academic Performance these findings are in line with the study of Yohanna (2017) who reported that psychosocial factors of classroom environment were not significant predictor of students performance in Basic Science. However the findings of the present study contradict that of Khine, Fraser, Afari and Kyau (2018) who reported a significant correlation between the component of perceived classroom psychosocial environment and performance in tertiary science classroom. However, similar findings were also reported in the studies of Kipnigetch (2017) and Ezike (2018) who also revealed in a separate study that classroom environment predict student achievement in chemistry

CONCLUSIONS

This study provides evidence on perceived influence of classroom psychosocial environment on academic performance of senior secondary biology students in Bauchi metropolis. The findings of the present study show that the perceived classroom psychosocial environment is not significantly predicting student's academic performance of senior secondary

school biology students. Although one of the components of the model shows statistically significant in predicting academic performance therefore this component can also be improved and practiced in senior secondary schools.

RECOMMENDATIONS

Based on the findings the following recommendations were made

1. Workshop, seminars, conference and short time courses should be organized for biology teachers in other to equip them with ways of providing better classroom psychosocial environment.
2. Teachers should ensure a conducive learning environment with good students cohesiveness, teacher support, where students are free to interact and support each other, practice more task, involve in practical and experiments this may improve learning outcome

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