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Original Article

PSYCHOSOCIAL VARIABLES AND STUDENTS' ACADEMIC ACHIEVEMENT AMONG SENIOR SECONDARY SCHOOL ONE STUDENTS CALABAR SOUTH LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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Abstract The main purpose of the study was to investigate the influence of psychosocial variables on students' academic achievement among senior secondary one students in Calabar South Local Government Area of Cross River State, Nigeria. Literature review was done according to the variables under the study. Ex-post facto research design was adopted for the study. A sample of two hundred ad twenty-one (221) were selected for the study. The selection was done through Purposive sampling technique. The questionnaire titled Psychosocial Variables and Biology Achievement Test Questionnaire (PVBATQ) was the instrument for data collection. The face and content validity were established by 3 using experts in measurement and evaluation in the Faculty of Education, University of Calabar. Cronbach Alpha reliability method was used to determine reliability estimate of the research instrument. The reliability coefficient ranges from .71 to .80. One-Way Analysis of Variance (ANOVA) was adopted to test the hypothesis of the study. The hypothesis was tested at .05 level of significance. The result of the analysis revealed that self-concept had a significant influence on students' academic achievement in Biology. Based on the result, it was recommended amongst others that guidance or school counselors should try to help students develop positive self-concept in Biology in order to enhance their academic achievement in Biology.

Keywords: Psychosocial variables, self-concept, Biology Academic, Achievement

Introduction

Science and technology play a significant role in the development of modern industries, shaping society and enhancing the quality of life. Science education, in particular, serves as the foundation for producing the scientists, science educators, and skilled artisans essential to a nation's economy, facilitating the technological advancements that are highly sought in today's world. The National Policy on Education (FGN, 2014) emphasizes the importance of teaching subjects within the sciences, including Biology, Physics, Chemistry, and Mathematics (Ibok, Meremikwu, & Umoh, 2020; Ntibi & Ibok, 2021).

Biology, as a branch of science, involves the study of life and living organisms. It is a diverse field comprising many specialized disciplines focused on the structure, function, growth, distribution, evolution, and other characteristics of living entities. As a science, Biology applies the scientific method to determine verifiable facts or formulate theories on

living things. Given its broad applications, Biology contributes substantially to individual intellectual development and is essential for adapting to the modern world. Its importance has earned it a prominent place in Nigeria's senior secondary school curriculum for science-oriented students (FRN, 2014).

Despite Biology's significance, students in Nigeria continue to exhibit poor performance in the subject, impacting the nation's economy and workforce across various sectors. The West African Senior Secondary Certificate Examination (WASSCE) results in recent years, including 2018, 2019, and 2020, have shown that over half of the candidates failed Biology, raising concerns among stakeholders (Ibok & Ntibi, 2020b; Ibok & Unoh, 2020). This trend not only hinders students from gaining admission into undergraduate science programmes but also impacts their confidence in pursuing Biology, creating a perception that success in the subject may be unattainable without external assistance (Bakar, 2017).

The poor performance in Biology has been attributed to various factors, with research indicating that psychosocial factors particularly self-concept play a significant role in academic achievement. Self-concept refers to an individual's perception of their abilities and worth. In the context of academics, self-concept can greatly influence students' approach to and success in subjects like Biology, shaping their motivation, engagement, and eventual performance. A student with a positive self-concept toward Biology is more likely to excel, while a negative self-concept may hinder progress (Ibok, Meremikwu, Ori, & Anditung, 2020).

As noted by Emenike (2016), a student's attitude and approach to learning Biology depend largely on their self-concept, which can manifest as either an empowering or limiting belief system. Students with a strong, positive self-concept are often intrinsically motivated, actively engage with Biology topics, and strive to perform well, whereas those with a poor self-concept may be discouraged or disengaged.

The emphasis on improving self-concept among Biology students is crucial, especially as declining performance could result in a shortage of biologists and educators in Nigeria in the future (Aderanti, 2021). Thus, understanding and addressing self-concept in educational settings may prove to be a pivotal intervention. This study, therefore, aims to examine the influence of self-concept on students' achievement in Biology within Calabar South Local Government Area of Cross River State, Nigeria.

The issue of students' consistently poor academic achievement in Biology has been a long-standing concern since the subject was introduced into the secondary school curriculum. Despite Biology's critical importance as a foundational science subject, essential for understanding many scientific principles and key to various professional fields such as medicine, agriculture, and environmental sciences, students' performance in the subject continues to decline. This trend is evident in both internal assessments conducted within schools and external examinations like the West African Senior School Certificate Examination (WASSCE) and the National Examinations Council (NECO). The inability of students to attain satisfactory grades has raised serious concerns among educators, parents, and policymakers.

At the heart of this problem is students' difficulty in grasping essential concepts in Biology, resulting in an overall failure to acquire the knowledge and skills necessary not only for academic progression but also for practical applications in everyday life. Contributing factors include the complex language often used in teaching Biology, outdated teaching methods that do not engage students effectively, and the intimidating nature of biological diagrams and symbols, which discourage many learners. Moreover, many students face challenges related to their self-

confidence, which significantly influences their engagement and performance in Biology. Students lacking in self-confidence often view the subject as overly difficult, causing them to disengage and, consequently, underperform Kan and Akbas (2016).

The broader implications of this persistent underachievement extend beyond the classroom. Parents, frustrated by their children's repeated failures, are often burdened by the financial costs of re-registering them for examinations. Poor student performance also reflects negatively on teachers, who are frequently evaluated based on their students' academic outcomes, resulting in a growing sense of frustration among teachers and a feeling of ineffectiveness in their roles Achor, Imoko and Uloko (2019). Additionally, the continued production of secondary school graduates lacking requisite knowledge and skills further exacerbates the declining standards in education. Many of these students fail to meet the minimum entry requirements for pursuing Biology-related courses in higher institutions, thus limiting their career prospects and contributing to a general decline in educational standards in Nigeria Mahyuddin, (2019).

Various strategies have been implemented over the years to improve Biology achievement, including programs aimed at enhancing teaching methods and providing more resources for Biology education. However, the problem of poor performance persists, indicating that these efforts have not fully addressed the root causes. One area that requires further investigation is the role of psychosocial variables, particularly self-concept, which may significantly influence students' academic achievement in Biology. Given the fundamental role of Biology in science, technology, and societal development, the persistent decline in students' performance in this subject raises critical questions. While factors like school resources and teaching approaches have been explored extensively, the influence of students' self-confidence has received comparatively less attention. Some studies suggest that a positive self-concept correlates with better academic outcomes, while a lack of confidence is often linked to poor performance (Cox, 2010). This study seeks to investigate the influence of psychosocial variables on the academic achievement of Biology students in Senior Secondary Schools one in Calabar South LGA of Cross River State. Understanding this relationship could provide valuable insights into potential interventions that may enhance students' interest, engagement, and performance in Biology, ultimately contributing to improved educational outcomes.

The review of available literature generally indicated that considerable works has been done in the area of this study. From the review of related literature, it could be inferred that students' psychosocial variables as influence their academic achievement in Biology. A good number of literature review on self-concept and academic achievement revealed that self-concept has a significant influence on academic achievement while few studies based on the reviewed literature revealed that self-concept has no significant influence on academic achievement.

Purpose of the Study

The purpose of this study is to determine the influence of psychosocial variables on students' academic achievement in Biology among Senior Secondary One students in Calabar South Local Government Area of Cross River State. Specifically, the study aims to determine whether:

Research Question

To guide the study, the following research question was raised:

i. How does students' self-concept influence their academic achievement in Biology?

Hypothesis

The study was guided by the following hypothesis:

i. There is no significant influence of self-concept on students' academic achievement in Biology.

Methodology

The design that was used for this study was the Ex-post facto research design. Ex-post facto research is a method of testing possible antecedents of events that have happened and cannot therefore be manipulated (Joshua 2005). The area of the study is Calabar South Local Government Area of Cross River State, Nigeria. The population of the study consisted of 2,214 SS I Biology students in Calabar South Local Government Area of Cross River State**.** A sample of 221 which is 10% SS I Biology students in Calabar South Local Government Area of Cross River State. Was randomly selected for the study. The selection was done through Purposive sampling technique. The questionnaire titled Psychosocial Variables and Biology Achievement Test Questionnaire (PVBATQ) was the instrument for data collection. The questionnaire consisted of two sections: A and B. Section A consisted of 10 to measure Students' Self-concept, while section B is made up of 20 objective items to measure students' academic achievement in Biology. The questionnaire was developed based on a four-point Likert scale of strongly agree (SA), (A) agree, (D) disagree and (SD) strongly disagree and the subjects were required to tick (√) the option that suit their opinion. Two kinds of validity are established for the instrument of this study. These are the face and content validity. The face and content validity were established by using experts in measurement and evaluation in the Faculty of Education, University of Calabar. To determine reliability of research instrument (questionnaire) a trial test was done using on 30 students who were not part of the actual study. After the administration and retrieval of the instrument from respondents, the instrument was coded and data subjected to statistical analysis using Cronbach Alpha reliability coefficient. The reliability coefficient ranges from .71 to .80. This proved that the reliability coefficient were high enough and reliable. The copies of the questionnaire were administered in each of the sampled schools.

Presentation of Result

The hypothesis of the study was tested at .05 level of significance.

Hypothesis one

There is no significant influence of self-concept on students' academic achievement in Biology. The independent variable in this hypothesis is self-concept (low, moderate and high); while the dependent variable is students' academic achievement in Biology. To test this hypothesis, students' academic achievement in Biology from self-concept low, moderate and high were compared using One-Way Analysis of Variance (ANOVA). The result of the analysis is presented in Table 1.

Table 1: **Summary data and one-way ANOVA of the influence of self-concept on students' academic achievement in Biology (N=221)**

Self-concept					
	N	$\bar{x}$	SD		
Low- 1	74	35.3378	2.71110		
moderate- 2	117	35.6325	3.02461		
High – 3	30	38.0000	1.01710		
Total	221	35.8552	2.85352		
Source of variance	SS	Df	Ms	F	Sig of F
Between group	163.616	2	81.808	10.956*	.000
Within group	1627.751	218	7.467		
Total	1791.367	220			

* Significant at p <.05 level, df= 2, 218.

The result on Table 1 revealed that the F-value of 10.956 at p=.000. Since the p (.000) is less than p (.005), the null hypothesis is rejected. This result therefore implied that, self-concept significantly influenced students' academic achievement in Biology. Since self-concept had a significant influence on students' academic achievement in Biology, a post hoc analysis was employed using Fishers' Least Significant Difference (LSD) multiple comparison analysis. The result of the analysis is presented in Table 2.

Table 2: Fishers' Least Significant Difference (LSD) multiple comparison analysis of the influence of self-concept on students' academic achievement in Biology

LSD

(I) Self-concept	(J) Self-concept	Mean Difference (I-J)	Std. Error	Sig.
Low	moderate	-.29464	.40586	.469
	High	-2.66216(*)	.59143	.000
moderate	Low	.29464	.40586	.469
	High	-2.36752(*)	.55920	.000
High	Low	2.66216(*)	.59143	.000
	Moderate	2.36752(*)	.55920	.000

The mean difference is significant at the .05 level.

The result of the analysis in Table 2 showed that students whose self-concept was low were significantly different in their academic achievement in Biology from those whose self-concept was either moderate or high. Also students whose self-concept was moderate were significantly different from those who were high in their academic achievement in Biology.

Discussion of Findings

The result of the hypothesis revealed that students' self-concept significantly influence their academic achievement in Biology. The findings of the hypothesis is in line with Bakari and Musa, (2018) who stated that psychosocial variables like self-concept plays a major role in determining the academic achievement of students. The finding is in agreement with Murphy (2017) who conducted a study that determine the relationship between self-identity and students' academic achievement in schools a counter stereotypical domain and found the more positive the self-description, the better the academic achievement and vice versa. The finding is consonance with James (2019) who conducted a study to explore case-effect of students' personal variable and their academic achievement in school Rivers State and found significant influence of self-concept on academic achievement in Biology.

The finding is supported by Charles (2018)who states that positive self-concept allow the individual to focus on his/her emotional energy on the content of the school curriculum. Eysenck (2019) found out that the negative effects of self-conception students' poor performance in schools. Self-concept affect the way individual behave, think, response to academic tasks. The finding agree with Paul (2017) who found that

school students with high self-concept had a poor school performance.

Conclusion

Psychosocial variable refers to thoughts, feelings, motivation, interaction and other cognitive characteristic that affect the behavior and functions of the mind. This factor can influence how a person thinks and later affect his decagons and relations in his daily life. Based on the results and findings of the study, the following conclusions were made; there is a significant influence of self-concept on academic achievement in Biology

Recommendations

Based on the findings of the study, the following recommendation were made

1. Students should be encouraged to keep good peer relationship and also engage in group work in Biology class. Fast learners should be encouraged to help slow learners in class, since they learn and understand faster and better than their friends. This will improve their academic achievement in Biology.

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