

THE INFLUENCE OF SELF-CONCEPT AND STUDY HABITS ON SENIOR SECONDARY STUDENTS' ACADEMIC ACHIEVEMENT IN BIOLOGY: EVIDENCE FROM CALABAR EDUCATION ZONE, NIGERIA

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Abstract

The persistent decline in academic achievement of senior secondary school students in Biology, particularly in Cross River State, has become a pressing concern for educators, parents, and policymakers. It is on the ground of this concern that the study sort to investigate the influence of self-concept and study habits on Senior Secondary Student's academic achievement in Biology in Calabar Education Zone of Cross River State. Two research questions were formulated to guide the study and ex-post facto research design was adopted. The population of the study comprised all Senior Secondary School two (SS2) Biology students with a total of 16,104 and a sample size of 433 using multi-stage sample technique. Two instruments were used for data collection namely: a questionnaire titled Students' Variables Questionnaire (SVQ) and an achievement test tagged "Biology Achievement Test (BAT). While the SVQ was constructed by the researcher, the BAT was adapted from WAEC past questions in Biology. The instruments were validated by three experts, one from measurement and evaluation and two from Biology education, University of Calabar. The reliability coefficient obtained were 0.93 and 0.80 using Kuder Richardson's formula. All the research questions and hypotheses were tested at 0.05 level of significance. The statistical tools used for research questions was Multiple correlation coefficient and hypotheses were, Pearson product Moment correlation, One-way Analysis of Variance (ANOVA). From the findings, there was a negative but statistically non-significant relationship between students' self-concept and their academic achievement in Biology, leading to the null hypothesis being retained. Based on the findings, it was concluded that while self-concept alone showed a negligible or non-significant relationship with academic achievement in Biology among

others. The study further recommended among others that Enhancing students' self-efficacy are crucial, given its significant relationship with academic achievement in Biology

Keywords: Influence, Self Concept, Study Habits, Academic Achievements Biology

Introduction

Education is the process where an individual acquires or imparts basic knowledge to another. It is also a process where a person develops skills essential to daily living; learns social norms, develops judgment and reasoning, and learn how to discern right from wrong. The ultimate goal of Biology education is to help an individual understand life processes and contribute to society (Turkmen, 2017). The primary goal of science is to learn how nature works by observing the natural and physical world by use of sensory experiences or aided instruments for the quantitative and qualitative description of the world and the regularity of events that take place in it. Machebe, (2017) posits that the thrust of science is to explain and understand natural phenomena, events, and processes. Kanel, (2018) emphasized that the aim of science is to detect with senses those distinguishing perspectives, the order that exist between and among the facts put forth by scientists. Biology education aims to help individuals understand life processes and contribute positively to society (Turkmen, 2017).

The study of Biology, as the science of life, is critical to medical science and related disciplines, thus necessitating its emphasis in secondary education (Knight & Wood, 2019). Consequently, Biology is a required subject for students aspiring to pursue science-related courses at the tertiary level (Knight & Wood, 2019). Despite the importance of Biology, senior secondary school students continue to exhibit poor academic performance in the subject, which has become a significant concern for educators and stakeholders (Knight & Wood, 2019). This poor performance persists even though many students retain a keen interest in enrolling in Biology for the Senior Secondary School Certificate Examination (SSCE). Evidence from the performance profile of Cross River State government secondary school students in Biology for the West African Examination Council (WAEC) from 2019-2023 shows a low percentage of candidates achieving a credit pass. For instance, the year 2021 recorded the lowest credit pass rate at 29.67%. This indicates a lack of progressive improvement in the academic achievement of students in Biology.

TABLE 1 Summary of WAEC results in Biology in Government secondary schools in Cross River State (2019-2023)

Year	No registered	A1-C6	% Passed	D7-E8	% Failed
2019	17,132	7,126	41.59%	10,006	58.45%
2020	18,527	6,175	33.33%	12,352	66.67%
2021	17,443	5,175	29.67%	12,268	70.34%
2022	16,850	4,021	23.86%	12,829	76.14%
2023	19,371	6,521	33.66%	12,850	66.34%

Source: Cross River State Ministry of Education, Calabar (2023)

The persistent reports of poor performance in SSCE Biology have drawn considerable attention from science educators, leading to ongoing research to identify causal variables for this repeated failure (Ajaja & Kpangban, 2016; Esiobu, 2015). Jegede (2016) reported factors responsible for students' poor performance in science to include among others, students' factors, teaching method and inadequate number of teaching facilities. Akanbi and Kolawule (2017), in their work have attributed this poor performance to teachers' methodology, structuring of the curriculum, the concentration of examination questions on few topics, the inability of students to perform enough practical before examination.

In addition, a study by Jegede and Awodu (2016), suggested that poor performance in science generally and Biology in particular in Nigeria could be as a result of some variables such as poor reading habits, students' negative attitude/interest towards Biology, gender inequalities. The present study therefore seeks to find out if students' demographic and psychological variables, have any relationship with their academic achievement in Biology in Calabar Education Zone of Cross River State. The independent variables considered include students' self-concept, study habit, self-efficacy, interest, aspiration, gender, age and religion as it relates to their academic achievement in Biology.

Generally, self-concept embodies the answer to "Who am I"? One's self-concept is made up of self-schemas, and their past, present, and future selves (Myers, 2019). Self-concept is distinguishable from [self-awareness](#), which refers to the extent to which [self-knowledge](#) is defined, consistent, and currently applicable to one's [attitudes](#) and [dispositions](#). Positive self-concept may function as incentives for certain behavior which academic performance is part of. The perception people have about their past or future selves is related to the perception of their current selves. Ulrich and Oliver (2016), suggested a positive relation between the students' self-concept and academic performance, especially when the operationalization of academic performance and self-concept is subject-specific and when level of learning are used as performance indicators. However, a substantial drawback of these studies is that the extent to which the relation between self-concept and academic performance is actually subject-specific remains unclear because different science subjects are not considered simultaneously.

Students differ from one another in every aspect including habits, towards attending classes, reading and completing assignments and tasks. In other words, study habit is seen as the different individual behaviour in relation to studying (Arora, 2016). Study habits is a combination of certain behaviours and skills that students adopt which could be classified as good or poor; positive or negative. Students study habits may lead to the success and failure of students in schools. This is essential, especially to students as it is the tool for learning and acquisition of information. Study habits also describe some external activities which serve to activate and facilitate the internal process of learning. Study habits are routines, including,

but not limited to the frequency of study sessions, review of materials, self-testing, rehearsal of learned materials and studying in certain atmosphere or environments (Ahmed & Olawunmi, 2017).

Purpose of the study

The purpose of the study is to investigate the influence of self-concept and study habits on Senior Secondary Student's academic achievement in Biology in Calabar Education Zone of Cross River State. Specifically, the study seeks to:

1. determine if there is any relationship between students' self-concept and their academic achievement in Biology.
2. find out if students' study habits have any relationship with their academic achievement in Biology.

Research questions

The following research questions were raised to guide the study:

1. How does students' self-concept relate to their academic achievement in Biology?
2. How does students' study habit relate to their academic achievement in Biology?

Literature Review

Theoretical concept.

Self-Concept Theory of Personality by Carl Rogers (1947)

The Self-Concept Theory of Personality was propounded by Carl Ransom Rogers (1947). Rogers believed that personality is driven by our desire for [self-actualization](#) or the condition that emerges when we reach our full potential and our self-concept, self-worth, and ideal self all overlap.

Rogers (1947) suggested that the incongruent individual, who is always on the defensive and cannot be open to all experiences, is not functioning ideally and may even be malfunctioning. They work hard at maintaining/protecting their self-concept. Because their lives are not authentic this is a difficult task and they are under constant threat. They deploy defense mechanisms to achieve this. He describes two mechanisms: distortion and denial. Distortion occurs when the individual perceives a threat to their self-concept. They distort the perception until it fits their self-concept. This defensive behavior reduces the consciousness of the threat but not the threat itself. And so, as the threats mount, the work of protecting the self-concept becomes more difficult and the individual becomes more defensive and rigid in their self-structure. If the incongruence is immoderate this process may lead the individual to a state that would typically be described as neurotic. Their functioning becomes precarious and psychologically vulnerable. If the situation worsens it is possible that the defenses cease to function altogether and the individual becomes aware of the incongruence of their situation. Their personality becomes disorganized and bizarre; irrational behavior, associated with earlier denied aspects of self, may erupt uncontrollably.

The relevance of this theory is that self-concept is believed to develop as a person grows old, influenced by environmental factors. In this sense, self-concept is actually a product of socialization and development, and that perception varies differently. A person may have a perception of himself different from what other people thinks. For example, an individual feels that he is generous while others see him as a selfish person.

Self-concept and students' academic achievement in science

Efobi and Okigbo (2022) carried out a study on relationship between academic self-concept and academic achievement of secondary school students in Biology in Anambra State. The findings of the study revealed among others that a positive relationship existed between the students' academic self-concept and their academic achievement in Biology. It was further found that while no significant relationship existed between male students' academic self-concept and their academic achievement in Biology, significant relationship was found between female male students' academic self-concept and their academic achievement in Biology.

Ugwuanyi, Nnolum, Nwachukwu, & Inweregbuh (2019) studied the influence of students' self-concept on their academic achievement in secondary school mathematics. The findings of the study revealed that the students' self-concept influences their academic achievement in mathematics.

Gunasekar and Pugalenth (2016) conducted a study to determine the self-concept and academic achievement of students in Biology. The study involved a sample of students studying Biology, although the exact sample size was not specified. The researchers employed a descriptive research design and collected data using self-concept and academic achievement scales. The data were analyzed using descriptive statistics. The study's findings revealed that the estimate of self-concept of students on the basis of academic achievement was significantly high. Furthermore, the results indicated a positive relationship between self-concept and academic achievement of students in Biology. The study concluded that students with high self-concept tend to have better academic achievement in Biology, and the findings have implications for educators and policymakers to develop strategies that enhance students' self-concept and academic achievement in Biology.

Similarly, Ihekwoaba *et al.* (2020) studied the test anxiety and self-concept as a predictor of Biology students' academic achievement. The study adopted correlational survey research design. A total 6,890 SSII Biology students in public secondary schools in Onitsha Education zone of Anambra state made up the population of the study, a sample size of 365 was drawn from the population. The instruments used for data collection were researchers developed Biology Test Anxiety Scale (BTAS); Self-concept Rating Scale (SRS) and Biology Achievement Test (BAT). Data generated were analyzed using linear regression, multiple regressions and ANOVA regression. Findings of the study revealed that there is no significant difference between students' achievement in Biology and their self-concept.

Shopelu *et al.* (2021) investigated the relationship between self-concept and performance in Biology among secondary school students in Minna. The study adopted a correlational

research design. The population for the study comprised 2,425 Male Students and 2,227 Female Students making a total sum of 4,698 students. A Sample size of 234 students was selected randomly from 10 Selected Schools making 20% of the population. The data collected from the sampled students were analyzed using descriptive and inferential statistics of mean and standard deviation with a significance level of 0.05. The result showed that there is a positive relationship between self-concept and students' academic performance.

A gap in the literature review on self-concept and students' academic achievement in science is the lack of studies on the relationship between self-concept and academic achievement in Biology among senior secondary school students in Nigeria, particularly in the Calabar Education Zone of Cross River State. Additionally, there is limited research on the influence of demographic variables such as age, sex, and socioeconomic status on academic achievement in Biology among senior secondary school students in Nigeria. Furthermore, there is insufficient investigation into the role of psychological variables such as motivation, interest, and attitude on academic achievement in Biology among senior secondary school students in Nigeria.

Study habits and students' academic achievement in science

Azonwua and Ochonma (2023) carried out a study on Influence of Study Habit on the Academic Performance of Biology Students in Senior Secondary Schools in Port Harcourt Metropolis, Rivers State. The study investigated study habits on academic performance of students in Biology in senior secondary schools in Port Harcourt Metropolis of Rivers State. The findings of this study revealed that allocation of study time, note-taking, learning motivation and memorization are variables of study habits that contribute to students' academic performance in Biology in senior secondary schools in Port Harcourt Metropolis, Rivers State.

Okebukola (2016) investigated the relationship between study habits and academic achievement in science among senior secondary school students in Nigeria. the study employed a quantitative research design and utilized a sample of 300 senior secondary school students selected through stratified random sampling. data were collected using a standardized study habits questionnaire and students' academic achievement in science was measured using their scores in the senior secondary school certificate examination. the data were analyzed using pearson product-moment correlation coefficient. the results of the study revealed that there was no significant relationship between study habits and academic achievement in science among the senior secondary school students. the study concluded that study habits may not be a significant predictor of academic achievement in science, and therefore, educators and policymakers should focus on other factors that may influence students' academic achievement in science. the study recommended that further research should be conducted to investigate the relationship between study habits and academic achievement in science using different populations and research designs.

Ajai, Shiaki & Bulus (2020) investigated the study habits of secondary school science students in the Jalingo metropolis, Taraba State, Nigeria. The study investigated the study

habits of secondary school science students in the Jalingo metropolis, Taraba State, Nigeria. The study which was guided by three research questions, employed a descriptive correlational research design. The sample of the study is made up of 199 students selected from 5 secondary schools through simple random sampling. The study revealed that the secondary school science students in the Jalingo metropolis have poor study habits and weak academic performance. The study also found a strong positive, high and significant correlation between study habits and academic performance of secondary school science students. It is thus recommended that teachers, parents, guardians and the school management should collaboratively guide students on how to develop good study habits.

Jafar, Aghaei and Khatony (2019) carried out a study to investigate the relationship between study habits and academic achievement in students of medical sciences of Kermanshah Iran. The aim of this study was to investigate the status of study habits and its relationship with academic achievement in medical sciences students in Kermanshah-Iran. Materials and methods: This cross-sectional study was carried out on 380 medical sciences students at Kermanshah University of Medical Sciences. The status of study habits was at moderate level for most students. It was recommended that, to consider and assess students' study habits at the time of entry into university, in addition, specific training should be offered to students in order to help them learn or modify study habits to increase their academic achievements

Asha and Anju (2020) studied the correlation between study habits and the academic achievement of high school students in Biology. The study involved 180 respondents who were selected from the population using probability disproportionate stratified sampling technique. The study adopted a descriptive correlation survey design. Data was generated using the socio-demographic questionnaire and the study habit inventory. The analysis of the data using Pearson Statistics showed that there was a significant positive correlation between study habits and academic achievement of students.

From the literature review on study habits and students' academic achievement in science the researcher discovered a gap that stems from lack of studies that have specifically investigated the relationship between study habits and academic achievement in Biology among senior secondary school students in Nigeria, particularly in the Calabar Education Zone of Cross River State. Furthermore, there is limited research on the impact of specific study habits such as time management, note-taking, and test-taking strategies on academic achievement in Biology among senior secondary school students in Nigeria. Additionally, there is insufficient investigation into the role of other factors such as learning environment and teacher support in influencing the relationship between study habits and academic achievement in Biology among senior secondary school students in Nigeria.

Methodology

The study adopted ex-post facto research design, and the study area was the Calabar Education Zone of Cross River State. The population of the study comprised all Senior Secondary School two (SS2) Biology students in Calabar Education Zone of Cross-River

State, Nigeria. The population of the study comprised all Senior Secondary School two (SS2) Biology students with a total of 16,104 and a sample size of 433 using multi-stage sample technique. Two instruments were used for data collection namely: a questionnaire titled Students' Variables Questionnaire (SVQ) and an achievement test tagged "Biology Achievement Test (BAT). While the SVQ was constructed by the researcher, the BAT was adapted from WAEC past questions in Biology. The instruments were validated by three experts, one from measurement and evaluation and two from Biology education, University of Calabar. The reliability coefficient obtained were 0.93 and 0.80 using Kuder Richardson's formula. Data were collected with the help of research assistances. All the research questions and hypotheses were tested at 0.05 level of significance. The statistical tool used for research questions was Mean and standard deviation and hypotheses were, Pearson product Moment correlation, One-way Analysis of Variance (ANOVA).

Presentation of results

Table 2:

Research Question One: How does students' self-concept relate to their academic achievement in Biology?

Mean scores and standard deviations of subjects in the study variables (N=433)

Variables	Mean	Std. Deviation	Number
Academic Achievement	38.0323	8.07768	433
Self-Concept	21.7806	6.60950	433
Study Habit	19.0693	6.29924	433
Self - Efficacy	18.9423	6.46564	433
Personal Interest	17.9284	5.84182	433
Career Aspirations	17.3418	5.69222	433
Gender	1.57	.496	433
Age	1.83	.670	433
Religion	1.13	.430	433

From the table above the result implies that the relationship exerted by self-concept of the respondents is rather very small to effect any significant change in students' academic achievement in Biology in the research area.

Table 3

Research Question 2

To what extent does students' study habit relate to their academic achievement in Biology? The research question was answered with Pearson Product moment Correlation statistic since the independent and dependent variables were continuously scored.

Summary of Pearson Product Moment Correlation between students' study habit and academic achievement in Biology

Variables	Mean	SD	$\sum X^2$ $\sum Y^2$	$\sum xy$	r
Study habit	19.069	6.299	17141.921	-4524.970	-.206
Academic Achievement	38.032	8.078	28187.547		

*Significant at .05 level; $p < .05$.

The results are presented in Table 3. As shown in table 3, the calculated correlation coefficient is -.206, which implies that there is a significant relationship between students' study habit and academic achievement in Biology. The negative relationship means that as students' study habit increases, their academic achievement increases and vice versa.

Discussions of findings

Self-concept and students' academic achievement in Biology

The result of data analysis of research question one analysis indicated a negative relationship meaning that as students' self-concept increases has a significant small relation with students' academic achievement. Subsequently, the result of data analysis in hypothesis one revealed that calculated r value is not statistically significant. In other words, the observed negative relationship between students' self-concept and academic achievement in Biology is not statistically significant. Therefore, the null hypothesis is retained. This implies that though the analysis of hypothesis showed that there is no significant relationship between students' self-concept and academic achievement in Biology, alternatively the analysis of the research questions shows a significant but small relationship between students' self-concept and academic achievement in Biology.

This result is in line with the study of Ugwuanyi, Nnolum, Nwachukwu, & Inweregbuh (2019) who carried out a study on Students' Self-Concept and Their Achievement in Basic Science. The study investigated the relationship between students' self-concept and their academic performance in Basic Science. The result showed that there was no significant

relationship between the secondary school student's self-concept and their academic performance in Basic Science. It also showed that there was no significant difference between the self-concept of male and female students in Basic Science as well as their performances. These results have implication for curriculum planning, classroom practice, and students' academic attainment.

On the other hand, the result contradicts the finding of Efobi and Okigbo (2022) carried out a study on relationship between academic self-concept and academic achievement of secondary school students in Biology in Anambra State. The findings of the study revealed among others that a positive relationship existed between the students' academic self-concept and their academic achievement in Biology.

Study habits and students' academic achievement in Biology

The data analysis for research question two revealed a weak correlation between students' study habits and their academic achievement in Biology. Furthermore, the analysis of hypothesis two showed a statistically significant negative relationship between students' study habits and their academic achievement in Biology, indicating that as study habits decrease, academic achievement in Biology also tends to decrease. Therefore, the null hypothesis is rejected.

This result is in line with the study of Azonwu and Ochonma (2023) that carried out a study on Influence of Study Habit on the Academic Performance of Biology Students in Senior Secondary Schools in Port Harcourt Metropolis, Rivers State. The study investigated study habits on academic performance of students in Biology in senior secondary schools. The findings of this study revealed that allocation of study time, note-taking, learning motivation and memorization are variables of study habits that contribute to students' academic performance in Biology in senior secondary schools in Port Harcourt Metropolis, Rivers State.

The result is equally in line with the findings of Jafar, Aghaei and Khatony (2019) who carried out a study to investigate the relationship between study habits and academic achievement in students of medical sciences of Kermanshah Iran. The aim of the study was to investigate the status of study habits and its relationship with academic achievement in medical sciences students in Kermanshah-Iran. Materials and methods: This cross-sectional study was carried out on 380 medical sciences students at Kermanshah University of Medical Sciences. The status of study habits was at moderate level for most students. It was recommended that, to consider and assess students' study habits at the time of entry into university, in addition, specific training should be offered to students in order to help them learn or modify study habits to increase their academic achievements.

Conclusion

Based on the result of the study the following conclusions were reached that there are the intricate relationships between students' academic achievement in Biology. While individual factors like self-concept and personal interests showed negligible or non-

significant relationships with academic achievement, collective consideration reveals their predictive significance. Notably, study habits emerged as vital predictor of academic success. By recognizing these factors, educators can develop targeted interventions, fostering improved study habits and ultimately promoting academic excellence in Biology.

Recommendations

Based on the findings of the study, the following recommendations were made:

- 1 Enhancing students' self- are crucial, given its significant relationship with academic achievement in Biology
- 2 Educators should prioritize developing effective study habits among students.

References

- Ahmed, M. A. & Olawunmi, K. A. (2017). Study habits as correlated of senior school students' achievement in Biology in Ilorin, Nigeria. *Nigerian Journal of Science*, 51(2), 101-107.
- Ajai, J. T., Shiaki, B. O. & Bulus, T. C. (2020). Study habits and academic achievement: A case study of secondary school science students in the Jalingo metropolis, Taraba State, Nigeria. *American Journal of Educational Research*, 5(5), 282-285.
- Ajaja, O. P. & Kpangban, E. (2016). Challenges facing research education in Nigeria: A critical analysis. *Journal of Education and Human Development*, 5(1), 1-9.
- Akanbi A. A & Kolawole, C. B (2020). Effects of guided-discovering and Self-Learning Strategies and Senior Secondary Students' Achievement in Biology. *Journal of Education and Leadership Development*, 6(1), 19-42.
- Arora, R. (2016). Academic achievement of adolescents in relation to study habits. *International Journal of Indian Psychology*, 3(9), 48-54.
- Asha, S. & Anju, A. R. (2020). The correlation between study habits and the academic achievement of high school pupils. *Universal Journal of Educational Research*, 8(12A), 7359-7366.
- Azonwua, C. N. & Ochonma, V. N. (2023). Examining the relationship between study habits and academic performance among Nigerian secondary school students. *Journal of Educational Research and Development*, 11(1), 1-12.
- Efobi, A., & Okigbo, E. (2022). Relationship between academic self-concept and academic achievement of secondary school students in Biology in Anambra State. *Nigerian Journal of Educational Psychology*, 15(1), 1-10.
- Esiobu, G. O. (2015). Research in science education in Nigeria: Challenges and prospects. *Journal of Science Education*, 16(2)143-152.
- Gunaskekar, N. & Pugalenthis, N. (2016). A study of self-concept and academic achievement of students at secondary school level, *Shanlax International Journal of Education*, 5(1), 1-6.
- Ihekwoaba, C.C., Chinweuba-eze, V. O., & Nduji, C.C. (2020). Test anxiety and self-concept as a predictor of Biology students' academic achievement. *IOSR Journal of Research and Method in Education (IOSR-JRME)*, 10(3), 47-55.
- Jafari, H., Aghaei, A., & Khatony, A. (2019). Relationship between study habits and academic achievement in students of medical sciences in Kermanshah-Iran. *Advances in Medical Education and Practice*, 10(1), 637-643.
- Jegede, O. S. (2016). Factors responsible for students' poor performance in science: A case study of Nigerian secondary schools. *Journal of Science Education*, 17(1)1-12.
- Myers, J. E. (2019). Exploring the dynamics of self-concept: Implications for counseling and psychotherapy. *Journal of Counseling and Development*, 97(2), 147-157.
- Okebukola, M. E. (2016). Relationship between study habits and academic achievement in science among senior secondary school students in Nigeria. *Journal of Science Education and Technology*, 5(2), 45-56.
- Rogers, C. R. (1947). The Self-Concept Theory of Personality was propounded by Carl Ransom

- Shopelu, B. O., Koroka, M. U. S. & Babagana, M. (2021). Self-concept as determinant of Biology performance among senior secondary school students in Minna, Niger State. *International Journal of Academic Multidisciplinary Research, (IJAMR)*, 5(4), 73-79.
- Ugwuayi, C. C., Nnolum, C. T., Nwachukwu, W. C. & Inweregbuh, C, O. (2019). influence of students' self-concept on their academic achievement in secondary school mathematics. *International Journal of Research and Innovation in Social Science (IJRISS)*, 3(11), 272-277.