

STUDY HABIT AND TEST ANXIETY AS PREDICTORS OF SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN BIOLOGY IN AWKA SOUTH LOCAL GOVERNMENT AREA

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Abstract

The study investigated study habits and test anxiety as predictors of secondary school students' achievement in Biology in Awka South Local Government Area. Three research questions and a sole hypothesis guided the study. The study adopted correlational survey research design. The population of the study comprised all the 1009 Secondary School 2 Biology students in the 20 public secondary schools in Awka South Local Government Area of Anambra State. The sample size was 100 SS2 Biology students drawn through simple random technique. The instruments that were used in collecting data for the study were three: Habits Inventory (SHI) developed by Bakare (1977), Test Anxiety Inventory (TAI), adapted from Spielberger (1980) and Students Biology achievement scores gotten from teachers' grade book of sampled schools 2024/2025 session. The instruments were standardized. Cronbach Alpha was used to obtain reliability coefficient of the study habit inventory and test anxiety which produced 0.81 and 0.82 values respectively. The data collected were analysed using linear and multiple regression. r and R^2 were used to answer research questions while p value was used to test the hypothesis. The findings showed that there is low positive prediction existing between study habit and academic achievement, test anxiety and academic achievement and there is joint positive prediction existing between study habit and test anxiety on secondary school students academic achievement in Biology in Awka South LGA. Hence, there was a significant positive effect for test anxiety (Beta = .244, $t = 3.018$, $p = .003$), suggesting higher anxiety relates to higher achievement, which is counterintuitive but statistically meaningful. Study habit, however, has a non-significant effect (Beta = .134, $t = 1.687$, $p = .093$). The constant is substantial (23.998), indicating other factors drive performance. Overall, test anxiety emerges as a meaningful predictor, while study habit does not. It was recommended among others that schools should develop and integrate comprehensive study skills programs into their curriculum, teaching students effective note-taking, time management, and organization techniques.

Keywords: Biology, Study Habit, Test Anxiety and Academic Achievement

Introduction

Biology underpins national development by driving health, agriculture, and innovation. A strong Biology education cultivates scientifically literate citizens, fuels medical advances, and enhances food security through improved crops and livestock. It is a subject that has its foundation in secondary school level of education. At this level students do simple experiment. For instance, and they enjoy examining dirty pond water under a microscope (Adeleye, 2018). The subject of Biology piques intellectual curiosity, increases awareness of the fragile ecosystem, and stimulates critical thinking. The aims and values of teaching biological sciences focuses on the importance of appreciating the natural world and protecting planet earth, and to improve self-reliance by providing job opportunities to enhance economic growth. Biology help students develop a deep understanding of the natural world and its complexities; hence students are expected to engage in good study habit for good academic success in Biology.

Study habits refer to the routine and consistent practices that individuals employ to acquire, retain, and apply knowledge and skills. According to Oluwatelure and Adeyanju (2021), study habits encompass various activities, including reading, note-taking, summarizing, self-quizzing, and reviewing, that help individuals process and retain information. No wonder Bentil (2023) posited that effective study habits play a significant role in shaping students' academic outcomes. While Pintrich (2020) stressed that student who develop good study habits, such as setting goals, creating schedules, and actively engaging with course materials, tend to perform better academically. Similarly, Putwain and Symes (2021) describe study habits as the strategies and techniques used to manage time, resources, and effort to achieve academic goals. In essence, study habits are the intentional and deliberate actions taken to maximize learning and understanding. By cultivating good study habits, individuals can optimize their academic achievement, develop a growth mindset, and become lifelong learners. Study habit is linked to test anxiety.

Test anxiety refers to the feeling of apprehension, nervousness, and tension that students experience when faced with an evaluation or assessment, such as a test or exam. It is a common phenomenon that can affect students of all ages and levels, but it is particularly prevalent among secondary school students in Nigeria (Onunkwo, 2022). Test anxiety was a significant barrier to learning among secondary school students in Nigeria, students who experience test anxiety tends to avoid challenging tasks and exhibit decreased motivation to study. As noted by Zeidner and Matthews (2022), students who engage in superficial learning strategies, such as mere reading, tend to experience increased test anxiety due to

their lack of preparedness. In contrast, students who adopt deep learning strategies, like summarizing and self-quizzing, tend to experience lower levels of test anxiety and achieve better academic outcomes. Students' study habits can either exacerbate or alleviate test anxiety (Oyeyemi, 2023). For instance, procrastination and avoidance behaviors can heighten test anxiety, while effective time management and planning can reduce it. The prediction between secondary school students' study habits and test anxiety is complex and bidirectional.

By adopting effective study habits and managing test anxiety, students can break this cycle and achieve academic success. Hence, study habit and test anxiety could impact academic achievement of secondary school students in Biology. Academic achievement according to Offor and Offiah (2021), refers to the extent to which students achieve their academic goals and outcomes, encompassing various aspects of their educational experiences. According to current authors, academic achievement is a multifaceted construct that goes beyond mere grades and academic achievement. In the words of Zeidner and Matthews (2022), academic achievement encompasses various dimensions, including cognitive, affective, and behavioral aspects. Cognitive aspects involve knowledge acquisition, critical thinking, and problem-solving skills, while affective aspects include motivation, interest, and attitudes towards learning. Behavioral aspects, on the other hand, involve students' engagement, participation, and persistence in academic activities.

The study habits of secondary school students in Biology seem to have a profound impact on their academic achievement, as evident from the latest research. Students who adopt good study habits such as regular studying, note-taking, and seeking help from teachers and peers tend to perform better academically. Similarly, Oladele and Oladele (2021) opined that students who set goals, create a study schedule, and seek help from teachers and peers tend to excel in their exams. Singh and Sharma (2022) discovered that students who utilize digital resources in addition to traditional study methods tend to perform better academically. Moreover, students' motivation and self-efficacy play a significant role in their study habits, with motivated and self-assured students adopting better study habits and achieving higher academic success. Furthermore, research by Oluwatelure and Adeyanju (2021) highlighted that students who adopt deep learning strategies such as summarizing, self-quizzing, and elaboration tend to perform better academically. In contrast, students who adopt surface-level strategies such as mere reading tend to perform poorly. By adopting effective study habits, students can improve their academic achievement, boost their confidence, and develop a lifelong love for learning and reduce test anxiety in biology. No wonder, Zeidner and Matthews (2021) noted that test anxiety can lead to a range of negative outcomes, including

decreased academic achievement, reduced motivation, and increased stress levels. While Ilori et. al. (2025) found that there is a positive co- relationship between study habit, examination anxiety, poor academic achievement and a positive significant relationship in the bivariate analysis.

The academic achievement of secondary school students in biology in Awka South Local Government Area is a pressing concern that warrants attention. As students navigate the challenges of adolescence and academic rigor, their study habits and test anxiety play a crucial role in shaping their academic outcomes in Biology (Obialor et al, 2024). Unfortunately, many students in this area struggle with ineffective study habits, lack of motivation, and debilitating test anxiety, which collectively seem to hinder their academic progress in Biology. The consequences of neglecting these issues are far-reaching, leading to poor academic achievement, decreased self-esteem, and reduced opportunities for future success. Therefore, it is imperative to investigate the study habits and test anxiety as predictors of secondary school students' academic achievement in biology in Awka South Local Government Area.

Research Questions

The following research questions were posed for the study:

1. What is the predictive power of study habit on secondary school students' academic achievement in Biology?
2. What is the predictive power of test anxiety on secondary school students' academic achievement in Biology?
3. What is the Joint- predictive power of study habit and test anxiety on secondary school students' academic achievement in biology?

Hypothesis

- Study habit and test anxiety do not significantly predict secondary school students' academic achievement in Biology.

Method

This study adopted correlational survey research design. The area of study was Awka South Local Government Area of Anambra State, Nigria. The population of the study comprised 1000 SS2 Biology students. The sample size of the study consisted of 100 SS2 Biology students drawn from 20 public secondary school in Awka South Local Government. Simple random sampling technique was used to draw five secondary schools out of the 20 public secondary schools in the area. From each of the secondary schools selected, 20 senior secondary two students were selected through the use of simple random sampling, giving rise to a total of 100 students which constituted 10% of the population. This sample size is eligible for the

study because according to Nworgu (2015) 10% of a population of a study can constitute a sample size.

The instruments that were used in collecting data for the study were three: study Habits Inventory (SHI) developed by Bakare (1977), Test Anxiety Inventory (TAI), adapted from Spielberger (1980) and Students Biology achievement scores gotten from teachers' grade book of sampled schools 2024/2025 session. The SHI is a single clustered, 15 item questionnaire eliciting responses on how individuals study using a 4-point likert scale ranging from 1 (strongly disagree), 2 (disagree), 3 (agree) and 4 (strongly agree). While TAI scale consist of 19-item self-report measure using a 4-point Likert scale ranging from 1 (almost never) to 4 (almost always).. For academic achievement in biology, Data were extracted from the SS 2 annual result for 2023/2024 academic session. Study habit and test anxiety generated 0.81 and 0.82 consistency values after trial testing the instruments in another area that is not the place of the study using Cronbach alpha.

Data generated from the study was analysed using r^2 to answer research questions. In interpreting the regression coefficients, the rule posited by Nworgu (2015) about the interpretation was adopted for the interpretation of the study using the range of scores as thus: ± 0.80 to ± 1.00 was assigned to high positive or negative predictive power, ± 0.31 to ± 0.79 was assigned to moderate positive or negative predictive power, ± 0.00 to ± 0.30 was assigned to low positive or negative predictive power. In interpreting the null hypotheses, the decision rule is that when P-value is less than or equal to 0.05 ($P < 0.05$) the null hypotheses was rejected. On the other hand, when P-value is greater than the alpha level 0.05 ($P > 0.05$), the null hypotheses was not rejected (accepted).

Results

Research Question one: What is the predictive value of study habit on secondary school students' academic achievement in Biology in Awka South LGA of Anambra State?

Table 1: Regression analysis of the predictive value of study habit on secondary school students' academic achievement in Biology

Source of Variation	N	Study habit r	Academic Achievement r	Remark	
Study Habit	100	1.00	0.27	Low	Positive
Academic achievement	100	0.27	1.00	prediction	
Adjusted r ² = 0.131					

In Table 1: Data reveals that there is low positive prediction regression = 0.27 existing between study habit and academic achievement of secondary school students in biology in Awka South Local Government Area. The adjusted adjusted r^2 explains that 13.1% of the total variability of academic achievement in Biology can be predicted by study habits.

Research Question two: What is the predictive value of test anxiety on secondary school students' academic achievement in biology in Awka South LGA of Anambra State?

Table 2: Regression analysis of the predictive value of test anxiety and academic achievement in public secondary schools in Awka South Local Government Area

Source of Variation	N	Test anxiety	Academic Achievement r	Remark
Test anxiety	100	1.00	0.21	Low Positive Prediction
Academic Achievement	100	0.21	1.00	

Adjusted $r^2 = 0.016$

Table 2 reveals that there is low positive prediction regression = 0.21 existing between test anxiety and academic achievement of secondary school students in biology in Awka South Local Government Area. The adjusted r^2 explains that 1.6% of the total variability of academic achievement can be explained by test anxiety.

Research Question three: What is the co- predictive value of study habit and test anxiety on secondary school students academic achievement in biology in Awka South LGA of Anambra State?

Table 3: Regression analysis of co- predictive value of study habit and test anxiety on secondary school students' academic achievement in biology

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.998	4.476		5.361	.000
	Study habit	.426	.252	.134	1.687	.093
	Test anxiety	.666	.221	.244	3.018	.003

The results presented in Table 5 reveal that a relatively low grand mean of 2.36, indicating that respondents perceive SES as less influential compared to other factors.

Table 6: Perceived Influence of Teacher-Student Relationship on Students'

Hypothesis

Ho: Study habit and test anxiety do not significantly predict secondary school students' academic achievement in Biology.

Table 3 above shows that a significant positive effect for test anxiety (Beta = .244, $t = 3.018$, $p = .003$), suggesting higher anxiety relates to higher achievement, which is counterintuitive but statistically meaningful. Study habit, however, has a non-significant effect (Beta = .134, $t = 1.687$, $p = .093$). The constant is substantial (23.998), indicating other factors drive performance. Overall, test anxiety emerges as a meaningful predictor, while study habit does not.

Discussion

The findings of the study showed that there is low positive prediction existing between study habit and academic achievement in Biology. The result is in line with Hattie and Donoghue (2021) who posited that effective study habits play a significant role in shaping students' academic outcomes. Similarly, Pintrich (2020) stressed that student who develop good study habits, such as setting goals, creating schedules, and actively engaging with course materials, tend to perform better academically. The low positive prediction existing between study habit and academic achievement in Biology as observed in the study may stem from measurement limitations, narrow construct coverage, or mediating factors (motivation, teaching quality) that dampen direct predictive strength despite consistent study efforts.

Additionally, the findings of the study revealed a low positive prediction existing between test anxiety and academic achievement in Biology. The finding is agreement with Zeidner and Matthews (2021) whom in their study stated that test anxiety can lead to a range of negative outcomes, including decreased academic achievement, reduced motivation, and increased stress levels. When students experience test anxiety, they may feel overwhelmed and unable to focus, leading to a decrease in their ability to recall information and think critically. The reason of low positive prediction existing between test anxiety and academic achievement in Biology as observed in the study could be as a result of measurement error in anxiety or achievement, limited range of anxiety scores, non-linear effects (optimum

anxiety), coping strategies masking impact, or confounding variables (support, instruction quality) diluting direct predictive strength in Biology.

Finally, the findings of the study showed that there is co- positive prediction existing between study habit and test anxiety on secondary school students' academic achievement in Biology and a positive significant relationship in the bivariate analysis. Hence, the result shows that a significant positive effect for test anxiety. Study habit, however, has a non-significant effect. The finding is in consonance with Cassady, (2020) who found that there is a positive co- relationship between study habit, examination anxiety, poor academic achievement and a positive significant relationship in the bivariate analysis. The reason of a significant positive effect for test anxiety and non-significant in study habit could be that test anxiety may arise from adaptive anxiety that enhances alertness, focus, and performance pressure, driving effort and meticulous preparation and study habit remains non-significant if habits are uneven, poorly aligned with Biology coursework, or overshadowed by other factors such as instruction quality or motivation. By the virtue of these findings, this study has joined group of scholars that observed a significant positive effect for test anxiety and non-significant effect in study habit.

Conclusion

The study concluded that a significant positive effect for test anxiety suggesting higher anxiety relates to higher achievement, which is counterintuitive but statistically meaningful. Study habit, however, has a non-significant effect. Overall, test anxiety emerges as a meaningful predictor, while study habit does not

Implications

The implication of the study is that poor study habits and test anxiety threaten secondary students' biology dreams, risking a downward spiral of underachievement, eroded confidence, and waning motivation. As grades fall, stress rises, potentially causing burnout and strained relationships with teachers and peers. Long-term consequences include narrowed career options, persistent science phobia, and diminished higher education prospects and earnings. Yet timely intervention can reverse this trend. Implementing study skills training, anxiety-reduction strategies, and personalized support can restore confidence, enhance problem-solving and critical thinking, and open STEM opportunities. Prompt action will empower students to reach their full potential and secure a brighter academic and professional future.

Recommendations

Based on the findings of the study, it was recommended that:

1. Schools should develop and integrate comprehensive study skills programs into their curriculum, teaching students effective note-taking, time management, and organization techniques.
2. School management should engage in regular workshops and counseling services to help students manage test anxiety, providing relaxation techniques and coping strategies.
3. Teachers should offer one-on-one support, tailoring instruction to meet individual students' needs and learning styles.
4. School management should encourage group work and peer-to-peer learning, fostering a supportive community that promotes active participation and mutual growth.
5. Government should provide teachers with professional development opportunities, ensuring they are equipped with effective teaching methods and anxiety-reduction strategies.

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