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## INFLUENCE OF STUDY SKILLS ON TEST ANXIETY LEVELS OF SENIOR SECONDARY SCHOOL STUDENTS IN MATHEMATICS

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### Abstract

The goal of this study, Influence of Study Skills on Test Anxiety of Senior Secondary School Students in Mathematics, was to ascertain the impact of study skills on test anxiety levels of senior secondary school students studying mathematics. Two research questions and two hypotheses were established to guide the investigation. 1,250 senior secondary school (SS III) students in the Kabba-Bunu Local Government Area of Kogi State, Nigeria, made up the study's population. Of these, 400 were selected by a stratified random sample procedure from eight different schools. The research instruments used for data collection were the Students' Study Skills Inventory (SSI) of the subjects and a Test Anxiety Scale (TAS) adapted from Sarason (1980). To analyse the data and respond to the research questions, mean ratings and standard deviation were used, and a t-test was used to test the null hypotheses at the 0.05 level of significance. The study's findings revealed that gender strongly influences students' test anxiety levels, with female students reporting higher levels of test anxiety than their male counterparts. Study skills have no discernible impact on students' test anxiety levels. recommendations formulated considering the study's findings.

**Keywords:** Study Skills, Anxiety, Test, Mathematics, Gender

### Introduction

In terms of scientific and technological advancement, Nigeria is considered a developing country. However, its educational system, which was previously ranked among the best in the world, is currently facing a decline in quality, as evidenced by students' academic achievement and performance, particularly in mathematics during the Senior Secondary Certificate Examinations (SSCE). This decline has raised concerns among teachers and educational researchers.

This study focused on investigating how students' study habits and test anxiety levels may impact their academic performance in mathematics within the Kabba/Bunu Local Government

Area of Kogi State. Teachers and educational researchers have a keen interest in their students' academic performance and achievements.

Many students struggle to master their subjects due to a lack of proper study techniques or habits. Effective studying is crucial for effective learning and academic success. The development of study skills is a critical factor in achieving success in school. Study skills are methods that students utilize to achieve their learning goals. They are essential for academic achievement and lifelong learning. Study skills encompass various actions individuals undertake to locate, organize, and retain knowledge. They should be differentiated from subject-specific approaches and innate abilities. Acquiring a wide range of study skills positively impacts academic performance, while a lack of fundamental study abilities can hinder academic success.

Anxiety is an emotional aspect of human life that arises when individuals experience excessive worries and feelings of powerlessness. It is a prevalent psychological issue due to its physical, emotional, and social manifestations. Anxiety is characterized by feelings of fear, uneasiness, tension, and trouble in the mind concerning uncertain events. It often develops as a response to individuals' efforts to manage various stressors. Anxiety is a negative emotion triggered by an anticipated threat to our psychological or physical well-being. It prompts individuals to seek control over or avoid the perceived threat. Anxiety can range from mild motivation and concentration enhancers to overwhelming and debilitating states. It may involve subjective feelings of tension, fear, nervousness, and edginess, along with increased autonomic arousal and physical symptoms.

Cognitive and perceptual processes can also be influenced by anxiety, leading to sensory-perceptual distortions and attention difficulties. Test anxiety levels can be influenced by various demographic factors such as age, gender, ethnicity, and study habits. Test anxiety has been categorized into different levels, with high anxiety being debilitating and moderate to low anxiety potentially facilitating performance.

Gender-related differences and similarities in anxiety behaviour have become a significant area of research. The term "gender" refers to cultural behaviour patterns associated with the sexes, which have a strong psychological basis. Despite improvements in government and educational policies to address gender discrimination, sex stereotypes and bias persist.

Given the above context, it is essential to examine gender as a factor that may influence students' test anxiety levels. Understanding the impact of study habits and test anxiety on academic performance can provide valuable insights for improving the educational system and supporting students in achieving their full potential.

Recently, there has been a significant increase in interest regarding the issue of anxiety and its association with our efforts to manage various stressors. Anxiety can arise when individuals find it challenging to handle specific situations or when they experience difficulties in coping with them. It is a natural human response to perceived dangerous or threatening circumstances.

Numerous students believed mathematics to be challenging, too abstract to have any real-world application, and thus of no or little interest to them. Others (Daud et al., 2020; Dunlap, 2007; Okori, O.A., & Ebere, 2019) view mathematics as a collection of symbols, notations, equations, formulae, and formalised procedures that must be memorised. Due to the misconceptions that students have about math, the level of anxiety that each student experiences while studying can vary.

Therefore, the purpose of this study is to ascertain how study habits and gender affect students' test anxiety levels in mathematics.

## **Methods**

The study employed an ex post facto research design, which means that the researcher observed and analyzed existing variables without manipulating them. The purpose of this design was to investigate the influence of study skills on test anxiety levels in the context of Kabba/Bunu Local Government Area of Kogi State, known for its poor academic performance in mathematics. The target population for the study consisted of all the secondary school III pupils (SS III) in the area, totalling 1,250 students across various schools.

A sample of 400 students, comprising 200 boys and 200 girls, was selected for the study. The schools were chosen using a straightforward random sampling technique, ensuring a representative sample. To select the students, a stratified random sampling technique was utilized, dividing them into gender-specific groups. From each selected school, 50 students were included, with an equal distribution of 25 boys and 25 girls. Thus, the sample represented a total of 400 students from 8 schools.

The study employed two instruments to collect data: the structured Study Skills Inventory (SSI) and the test anxiety scale (TAS), adapted from Sarason's work in 1980. The SSI consisted of 29 items, while the TAS comprised 32 items. Both instruments utilized a four-point rating scale for respondents' answers, allowing for a range of responses.

Reliability scores were calculated to assess the consistency and stability of the Study Skills Inventory (SSI) and Test Anxiety Scale (TAS). The reliability score for the SSI was found to be 0.72, indicating an acceptable level of reliability, while the TAS had a reliability score of 0.85, indicating good reliability.

To test the hypotheses formulated in the study, t-test statistics were employed at a significance level of 0.05. The t-tests allowed for the comparison of means between different groups. Descriptive statistical tools such as mean and standard deviation were utilized to address the research questions and provide a summary of the data.

In summary, the study employed an ex post facto research design to explore the influence of study skills on test anxiety levels in Kabba/Bunu Local Government Area of Kogi State. A sample of 400 students from 8 schools was selected using random sampling techniques. Data were collected using the Study Skills Inventory (SSI) and the test anxiety scale (TAS), and analyzed using t-tests, mean, and standard deviation.

**Research Questions:**

1. How do study techniques affect students' test anxiety levels?
2. How does gender affect the test-anxiety levels of secondary school students?

**Hypotheses:**

Ho1 study techniques have no discernible impact on secondary school students' test anxiety levels.

H02 The influence of gender on secondary school students' test anxiety is not significant.

**Findings and Discussions**

The findings indicate a substantial impact of gender on the levels of test anxiety experienced by students. The calculated t-value surpasses the critical t-value of 1.960 at a significant level of 0.05. Specifically, female students exhibit higher levels of test anxiety compared to their male peers. Consequently, the null hypothesis, which suggests no significant influence, is rejected.

**Findings**

The following are the results displaying the mean ratings and standard deviation of students with good study skills (SGSS) and students with poor study skills (SPSS) on the mean test anxiety levels.

Study skills	Mean	SD	N	Remarks
SGSS	2.42	0.40	184	Disagree
SPSS	2.45	0.39	216	Disagree

The results reveal the mean ratings and standard deviations of students' test anxiety levels. Specifically, students with good study skills have a mean score of 2.42, which is slightly lower than their counterparts with poor study skills who have a mean score of 2.45. This suggests that students with good study skills tend to have a lower Test Anxiety Scale compared to students with poor study skills. To determine if this difference is statistically significant, further testing is required.

Table 2: t-test of the Students with Good Study Skills (SGSS) and Students with Poor Study Skills (SPSS) on the Students' Mean Test Anxiety Levels

Study skills	Mean	SD	N	DF	Sign. level	T-cal	T-crit	Decision
SGSS	2.42	0.40	184	398	0.05	0.476	1.960	Accept
SPSS	2.45	0.39	216					

The results suggest that there is no significant difference in the mean test anxiety scores between students with good study skills and those with poor study skills. This conclusion is drawn based on the comparison between the calculated t-value of 0.40 and the critical t-value of 1.960 at a significant level of 0.05. As the calculated t-value is lower than the critical t-value, the null hypothesis, which states that study skills have no significant influence on students' test anxiety levels, is retained.

Table 3: Mean Ratings and Standard Deviations on the Influence of students' Gender on Test Anxiety Levels

Gender	Mean	SD	N	Remarks
Male	2.39	0.38	200	Disagree
Female	2.55	0.42	200	Agree

The provided result displays the mean ratings of test anxiety levels for male and female students. Specifically, female students exhibit a higher mean score of 2.55, while their male counterparts have a lower mean score of 2.39. This indicates that, on average, female students experience higher levels of test anxiety compared to male students.

Table 4: T-test Analysis of Influence of Students' Gender on Test Anxiety

Gender	Mean	SD	N	DF	T-cal	T-crit	Sign. level	Division
Male	2.39	0.38	200	398	2.54	1.960	0.05	Reject
Female	2.55	0.42	200					

**Discussions**

The result in Tables 1 and 2 revealed that study skills have no significant influence on the students' test-anxiety levels. The data were subjected to t-test analysis. The calculated t-value was lower than the t-critical value, indicating no significant influence of study skills on test anxiety levels of the students. However, this finding contradicts the findings of Misra (2017) who found a negative correlation between study skills and students' test anxiety levels.

The results in Tables 3 and 4 show that gender has a significant influence on students' test anxiety levels. The hypothesis was also subjected to t-test analysis. The calculated t-value is greater than the t-critical value. This indicates a significant influence of gender on test anxiety levels. The females show a higher test anxiety level than their male counterparts. This finding is in line with the findings of Zeidner and Safir (2017) who found that there is a significant gender difference in mean levels of test anxiety, with females scoring higher across the categories. The researcher's finding is also in agreement with the study by Everson and Mislap (2015). They found that females have higher levels of worry as well as high levels of emotionality.

## Conclusion

The conclusion of this study suggests that study habits or techniques do not have a discernible impact on students' test anxiety levels. This is based on the analysis conducted using the t-test, where the calculated t-value was lower than the t-critical value, indicating that there is no significant effect of study skills on test anxiety. These results differ from the findings of Misra (2017), who reported a negative relationship between students' study habits and their test anxiety levels. It is important to note that different studies may yield conflicting results, and further research is needed to understand the relationship between study habits and test anxiety more comprehensively. Based on the findings of the study, the following recommendations have been made:

1. **Curriculum Enhancement:** Curriculum designers and government authorities should collaborate to incorporate study skills into the secondary school curriculum. By including explicit instruction and guidance on study skills, students can develop effective strategies to manage their anxiety and improve their academic performance.
2. **Support for School Guidance Counsellors:** The government should provide adequate support and resources to school guidance counsellors. These professionals play a crucial role in assisting students in reducing anxiety and developing study skills. By ensuring counsellors have the necessary resources and training, they can create a supportive and conducive learning environment.
3. **Parental Involvement:** Organize conferences, seminars, or public awareness campaigns to educate parents on how to assist their children in acquiring effective study skills. By equipping parents with the knowledge and techniques to support their children's learning, a collaborative effort can be established between schools and families to enhance study skills and reduce anxiety.
4. **Research on Anxiety Reduction Techniques:** Support research studies aimed at identifying techniques to alleviate students' anxiety. While study skills are beneficial, it is important to explore additional strategies or interventions that specifically target anxiety reduction. By understanding and implementing evidence-based approaches, educators and policymakers can effectively address and mitigate student anxiety.

These recommendations aim to enhance the learning experience, reduce anxiety, and promote the development of effective study skills among students.

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