PSYCHOLOGICAL VARIABLES AS DETERMINANTS OF ACADEMIC ACHIEVEMENT AMONG SECONDARY STUDENTS IN COMPUTER STUDIES, CALABAR METROPOLIS

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Abstract

This study focused on psychological variables as determinants of academic achievement among secondary students in Computer Studies, Calabar Metropolis. The study was guided by two objectives and two null hypotheses. This work adopted Cognitive Theory by Aaron Beck in 1967. The study employed descriptive survey and correlation research designs. The population of the study comprised all the 3000 public secondary school students in Calabar Metropolis of Cross River State, Nigeria; of which simple random sampling technique was used to select 10% (300) from the overall population of the study. The instruments used for data collection were Psychological Variables Questionnaire (PVQ) and Computer Studies Achievement Test (CSAT). Data gathered were analyzed using independent t-test. The finding of the study indicated that there is significant relationship between anxiety and secondary school students' achievement in computer studies. It was also revealed that attitude has significant relationship with secondary school students' achievement in computer studies. In line with the findings, it was recommended that school counselors should constantly organize counseling sessions for students in order to enable them develop positive attitudes toward practical computer skills. Teachers and parents should encourage students to develop confidence in their computer-related abilities through regular practice and participation.

Keywords: Psychological Variables, Academic Achievement, Computer Studies, Anxiety and Attitude.

Introduction

Computer studies is one of the subjects in secondary school which teaches students about computers and equip them with the knowledge and skills necessary to understand, operate and make use of computers. According to National Policy on Education (2013), computer studies as a subject, helps students to develop basic computer literacy, understand computer hardware and software, acquire practical computer skills, promote problem-solving and critical thinking, understand data processing and information management as well as introduce computer programming concepts among others. Computer studies remains very

critical to technological growth of a country in the 21st century; as it encourages creativity, innovation and the application of technology in real life problems.

The extent to which the above objectives of computer studies can be reasonably achieved by the students may be dependent on some psychological variables such as anxiety and attitude among others. This is because the anxiety and attitude can make students have difficulty in concentration, memory retention, classroom participation, examination performance and eventually result in poor academic achievement and reduced educational satisfaction.

Anxiety as a psychological variable of secondary school students is a condition characterized by feelings of tension, apprehension, worry and physiological arousal in anticipation of perceived threats or challenges. In the view of American Psychiatric Association (2022), anxiety is a natural response to stressful situations and may serve adaptive functions when experienced at moderate levels. Excessive or prolonged anxiety can interfere with cognitive functioning, emotional stability, and behavioral performance, particularly within academic environments.

While moderate anxiety may motivate students toward academic achievement, excessive anxiety can impair concentration, memory, decision-making, and overall academic performance. Auerbach et al. (2016) posited that anxiety among students has generated concerns among educators, psychologists, parents and policymakers. As such, understanding the relationship between anxiety and academic achievement of secondary school students in computer studies is essential for developing effective intervention strategies aimed at improving students' psychological well-being and academic success (Meremikwu et. al 2022; Adie et. al 2026; Ibu et. al 2019; Ibu et. al, 2019).

According to Richardson et al. (2021), secondary school students' performance in computer studies over time has been poor and this has attracted public outcry by parents and well-meaning Nigerians. Anxiety by students among others have significant negative effect on students' academic achievement. Owens et al. (2021) reported that students experiencing high anxiety levels exhibited reduced classroom engagement and poorer examination performance. Excessive anxiety was found to interfere with information processing and academic motivation. High anxiety levels have been associated with poor examination outcomes, lower grade point averages, and reduced academic confidence. Students experiencing chronic anxiety often engage in avoidance behaviors that further hinder academic success.

Different researchers over time have increasingly identified anxiety as a significant determinant of academic achievement among secondary school students. In the view of Richardson, Abraham and Bond, anxiety by the students themselves are some of the factors among others that have actually contributed to poor performance of secondary school students. In the same vein, Cassady and Johnson (2020) maintained that students with high level of anxiety often report difficulties in concentration, memory retention, classroom participation and examination performance. These difficulties may lead to poor academic achievement and reduced educational satisfaction.

Attitude as a psychological variable plays a major role in determining the academic achievement of students in computer studies; as it may have positive or negative influence on their achievement. In the opinion of Purkey (2018), attitude is a function of dynamic change in behaviour and learning. Hence, the attitude of students toward computer studies could influence students' academic achievement either positively or negatively. Students that possess positive attitude towards computer studies are very likely to have enhanced or better academic achievement compared to their counterparts with negative attitude.

According to Charles (2018), students' attitudes is an important factor that tends affect academic achievement because affective dispositions are powerful predictors of

students' subsequent behaviour. Charles therefore, affirmed that there is a strong positive relationship between students' attitudes towards education and their academic performance and commitment (Adie et. al 2020, Igyu et. al 2022, Obi et. al 2020). Students who have negative attitude towards a particular subject are found to exhibit challenging behaviour including antisocial and off-task behaviour.

Empirically, several studies by different scholars over time suggest a positive relationship between students' attitude and their academic achievement in computer studies. For instance, Peipei et al (2021) examined the relationship between attitude toward computer studies and academic achievement of students in Finland. The purpose of the study was to ascertain whether secondary school students who exhibit positive attitude towards computer studies perform better than their counterparts with negative attitude. Correlation research design was used for the study. A sample of 700 secondary school students were used for the study. Attitude and Computer Studies Achievement Test (ACSAT) was the instrument used for data collection. Data gathered were analyzed with simple linear regression. The outcome of the study revealed that there was an overall positive relationship between attitude toward computer studies and students' academic achievement.

In the same vein, Narmadha and Chamundeswari (2023) investigated secondary school students' attitude towards learning of computer studies and their academic achievement in the same subject in South Africa. Quasi experimental and correlation research designs guided the study. The study was made of 54 secondary school students within the study area. Computer Studies Achievement Test (CSAT) was the main instrument used for data gathering. Data collected were subjected to statistical analysis, using Pearson Product Moment Correlation Coefficient and t-test. Results showed that students in the experimental group who had positive attitude towards computer studies performed better up than those in the control group. Thus, there is significant relationship between attitude and secondary school students' academic achievement in computer studies. The finding further showed that there was no significant difference in the academic achievement of the students on the basis of gender.

Olamide (2019) examined the correlation between attitude and students' academic achievement in computer studies in Kwarra State, Nigeria. The purpose of the study was to find out the mean difference in the academic achievement of secondary school students on the basis of their attitude towards learning computer studies. Two null hypotheses guided the study. quasi experimental research design was adopted for the study. The sample of the study comprised 100 public secondary school students in Kwarra State, Nigeria. Attitude to Computer Studies Questionnaire and Computer Achievement Test were the instrument used for data collection. Multiple regression analysis was used to test the hypotheses at 0.05 significant level. The result showed that students with positive attitude towards computer studies performed better in the subject than their class mates who had negative attitude towards computer studies.

Theoretical Framework

This work adopted Cognitive Theory. Cognitive Theory was developed by Aaron Beck in 1967. The theory posits that individuals' emotions and behaviors are largely influenced by their perceptions and interpretations of events rather than the events themselves. According to the theory, anxiety develops when individuals consistently interpret situations as threatening and underestimate their ability to cope with challenges effectively

The theory also believes that maladaptive cognitive processes such as catastrophizing, overgeneralization, and negative self-evaluation contribute significantly to anxiety disorders. In academic settings, students may develop irrational fears about examinations, assignments, or academic failure, resulting in heightened anxiety and impaired academic functioning. The

theory further suggests that anxious students often engage in negative self-talk and anticipatory worry, which consume cognitive resources necessary for learning and academic performance. Consequently, anxiety interferes with attention, memory, reasoning, and problem-solving abilities required for educational success.

Cognitive Theory is relevant to this study because it explains how students' perceptions of academic challenges influence their anxiety levels and subsequent academic performance. The theory also provides a foundation for interventions aimed at modifying negative thought patterns and improving students' psychological well-being and educational outcomes.

Statement of the problem

The academic achievement of secondary school students in computer studies has been on a decline; as it has attracted the attention of parents and other stakeholders in the educational sector. This poor performance of students in computer studies may not be partly unconnected to psychological variables such anxiety and self-concept. In fact, the prevalence of anxiety and self-concept among secondary school students has become a major concern. This in turn make students to have difficulty in concentration, memory retention, classroom participation, examination performance and eventually result in poor academic achievement and reduced educational satisfaction.

Purpose of the study

This study focused on psychological variables as determinants of academic achievement among secondary students in Computer Studies, Calabar Metropolis. It specifically sought to:

i. Examine the relationship between anxiety and secondary school students' achievement in computer studies.
ii. Ascertain the relationship between attitude and secondary school students' achievement in computer studies.

Research questions

The following research questions guided the study

i. What is the relationship between anxiety and secondary school students' achievement in computer studies?
ii. How does attitude relate to secondary school students' achievement in computer studies?

Research hypotheses

i. There is no significant relationship between anxiety and secondary school students' achievement in computer studies.
ii. Attitude does not have significant relationship with secondary school students' achievement in computer studies.

Methodology

This study employed descriptive survey and correlation research designs. Descriptive survey is a research design which is concerned with the study of a larger population through a representative sample. This design was adopted because the study involves drawing generalization based on analysis of data collected from a fraction of a larger population. On the other hand, correlation research design was also considered suitable for this work because the study is aimed at establishing the relationship between anxiety and students' academic achievement in computer studies as well as the correlation between attitude and secondary school students' academic achievement in computer studies.

The population of the study comprised all the 3000 public secondary school students in Calabar Metropolis of Cross River State, Nigeria. The population was drawn from the 24 public secondary schools within the study area. Simple random sampling technique was used to select 10% from the overall population of the study. The instruments used for data collection were Psychological Variables Questionnaire (PVQ) and Computer Studies Achievement Test (CSAT). Data gathered were analyzed using independent t-test.

Data presentation and result

Hypothesis one: There is no significant relationship between anxiety and secondary school students' achievement in computer studies.

Table 1: Independent t-test analysis of the relationship between anxiety and secondary school students' achievement in computer studies

Variable	$\sum x$	$\sum x^2$	$\sum xy$	r-value
Anxiety	.3574	3849	89655	0.53
Students' academic achievement in Computer Studies	3228	5375		

*Significant at p <.05, Critical value=38

Data in table 1 ascertained the relationship between anxiety and secondary school students' academic achievement in computer studies. To test the hypothesis, independent t-test was used. Result in table 1 indicated that the critical value is 38 while the table value was 0.53. The decision rule states that if the calculated or critical value is greater than the table value, the null hypothesis should be rejected while the alternative hypothesis should be accepted. Therefore, since the critical value of 38 is greater than the table value of 0.53, the null hypothesis which states that there is no significant relationship between anxiety and secondary school students' academic achievement in computer studies was rejected. The finding of the study therefore, revealed that there is significant relationship between anxiety and secondary school students' academic achievement in computer studies.

Hypothesis two: Attitude does not have significant relationship with secondary school students' achievement in computer studies.

Table 2: Independent t-test analysis of the relationship between attitude and secondary school students' achievement in computer studies

Variable	$\sum x$	$\sum x^2$	$\sum xy$	r-value
Attitude	.3514	3649	89611	0.431
Students' Achievement in Computer Studies	3218	4375		

*Significant at p <.05, Critical value=33.12

Data in table 2 examined the relationship between attitude and secondary school students' academic achievement in computer studies. To test the hypothesis, independent t-test was used. The result showed that the critical value is 33.12 while the table value is 0.431. The decision rule states that if the calculated or critical value is greater than the table value, the null hypothesis should be rejected while the alternative hypothesis should be accepted. Therefore, since the critical value of 33.12 is greater than the table value of 0.431, the null hypothesis which states that attitude does not have significant relationship with secondary school students' achievement in computer studies was rejected. The finding of the study

therefore showed that attitude has significant relationship with secondary school students' achievement in computer studies.

Discussion of findings

The discussion of findings as contained herein was presented table by table based on each hypothesis.

Anxiety and secondary school students' achievement in computer studies

Data in table 1 ascertained the relationship between anxiety and secondary school students' achievement in computer studies. The finding of the study indicated that there is significant relationship between anxiety and secondary school students' achievement in computer studies. This study corroborates with the view of American Psychiatric Association (2022) which maintained that excessive or prolonged anxiety can interfere with cognitive functioning, emotional stability, and behavioral performance, particularly within academic environments (Adie et. al 2019; Adie et. al 2019; Adie et. al 2022).

According to Richardson et al. (2021), anxiety by students among has significant negative effect on students' academic achievement. Owens et al. (2021) reported that students experiencing high anxiety levels exhibited reduced classroom engagement and poorer examination performance. Excessive anxiety was found to interfere with information processing and academic motivation. High anxiety levels have been associated with poor examination outcomes, lower grade point averages, and reduced academic confidence. Students experiencing chronic anxiety often engage in avoidance behaviors that further hinder academic success.

In the same vein, Cassady and Johnson (2020) maintained that students with low self-concept and high level of anxiety often report difficulties in concentration, memory retention, classroom participation and examination performance. These difficulties may lead to poor academic achievement and reduced educational satisfaction.

Attitude and secondary school students' achievement in computer studies

Data in table 2 examined the relationship between attitude and secondary school students' achievement in computer studies. The result revealed that attitude has significant relationship with secondary school students' achievement in computer studies. The result is in line with the opinion of Charles (2018), who stated that students' attitudes is an important factor that tends affect academic achievement because affective dispositions are powerful predictors of students' subsequent behaviour. Charles therefore, affirmed that there is a strong positive relationship between students' attitudes towards education and their academic performance and commitment. Students who have negative attitude towards a particular subject are found to exhibit challenging behaviour including antisocial and off-task value.

Peipei et al (2021) examined the relationship between attitude toward computer studies and academic achievement of students in Finland. The outcome of the study revealed that there was an overall positive relationship between attitude toward computer studies and students' academic achievement. In the same vein, Narmadha and Chamundeswari (2023) investigated secondary school students' attitude towards learning of computer studies and their academic achievement in the same subject in South Africa. Results showed that students in the experimental group who had positive attitude towards computer studies performed better up than those in the control group. Thus, there is significant relationship between attitude and secondary school students' academic achievement in computer studies. The finding further showed that there was no significant difference in the academic achievement of the students on the basis of gender. Olamide (2019) examined the correlation between attitude and students' academic achievement in computer studies in Kwarra State,

Nigeria. The result showed that students with positive attitude towards computer studies performed better in the subject than their class mates who had negative attitude towards computer studies.

Conclusion

This study focused on psychological variables as determinants of academic performance of secondary school students in Computer Studies, with particular emphasis on anxiety and students' attitude towards the subject. The outcome of the study revealed that both anxiety and attitude have significant relationship with students' academic achievement in Computer Studies. Specifically, students who experienced lower levels of anxiety tend to perform better academically, while those with positive attitude towards Computer Studies demonstrated higher academic achievement. Thus, efforts aimed at improving students' attitudes and reducing anxiety in Computer Studies are likely to enhance their academic achievement.

Recommendations

Based on the findings of the study, the following recommendations have been made:

i. School counselors should constantly organize counseling sessions for students in order to enable them develop positive attitudes toward their school subjects.

ii. Teachers and parents should encourage students to develop confidence in their computer-related abilities through regular practice and participation.

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