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ACADEMIC STRESS AS A PREDICTOR OF SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN COMPUTER STUDIES IN AWKA EDUCATION ZONE

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ABSTRACT

The study investigated the prediction of students' academic achievements in Computer Studies by academic stress in Awka Education Zone of Anambra State, Nigeria. Two research questions and two hypotheses tested at a 0.05 level of significance guided the study. A correlation survey research design was adopted. The population of the study comprised 14,657 (6,346 males and 8,311 females) senior secondary two (SS2) students in the 62 state government-owned secondary schools in the Zone. A sample of 390 students determined using Taro Yamane's formula for calculating sample size and obtained using a multi-stage sampling procedure was used for this study. However, only 335 (128 males and 207 females) students, representing 85.9% of the sample size, accurately completed the administered instrument and were used as the sample for the study. The instrument used to collect data was Academic Stress Scale (ASS) adapted from Bedewy and Gabriel (2015). The ASS was validated by three experts from the Faculty of Education, Nnamdi Azikiwe University, Awka. The Cronbach alpha reliability test of the instrument gave a coefficient of 0.62, which is considered to be reliable. In addition, the second-term examination results of the students in Computer Studies for the 2023/2024 academic session represent their achievement scores in the subject. The data collected were analysed using the Pearson Product Moment Correlation Coefficient and regression analysis. The findings of the study revealed, among others, that academic stress does not significantly predict students' achievement in Computer Studies and the moderating influence of gender in the prediction is insignificant. The study concluded that other variables not academic stress affect SS2 students' achievement in Computer Studies in Awka Education Zone. It was recommended, among other things, that students should learn to be optimistic about academic challenges and to perceive them as a call for personal development.

Keywords: Prediction; Students; Academic Achievement; Computer Studies; Academic Stress

Introduction

It is globally acknowledged that education systems must adapt to rapid technological advancements of the 21st century by leveraging computer technologies and including its study to improve teaching and learning in schools. This adaptation is necessary for competitive education systems that can solve the problems of the 21st century. Computer Studies was recently added to Nigeria's secondary school curriculum to align with

this global trend. Computer Studies is a vocational, scientific and technological school subject. It focuses on representing objects and processes, such as algorithmic processes, principles, hardware and software designs, and their effects on society (Okekeokosisi & Okigbo, 2021a). The Federal Republic of Nigeria (FRN, 2014) in the National Policy on Education states that the inclusion of Computer Studies in the secondary school curriculum has two main objectives namely; to promote lifelong learning in students and to provide them with the necessary skills for employment and responsible citizenship. Also, Computer Studies aim to familiarise students with Information Communication Technology (ICT) due to its importance in the technological progress and advancement of Nigerian society (Adigun *et al.,* 2015). Similarly, Ohadugha *et al.* (2020) and Saka *et al.* (2019) both contended that the subject is crucial for students to succeed in our current digital society.

Given the significance of Computer Studies for Nigerian society, it is crucial for Nigerian students, particularly those in secondary schools, to excel in this subject in both internal and external examinations. The focus on secondary schools is because individuals who complete this level of education can either pursue higher education at tertiary institutions or join the workforce to contribute to the country's economy (Joshua, 2014). However, the West African Examination Council (WAEC) Chief Examiners' Report for Computer Studies between 2019 and 2021 reveals a varying performance trend among secondary school students at the Senior School Certificate Examination (SSCE). The reports indicate that the percentage of students who achieved grades ranging from C6 to A1 in the subject in 2019 was 64.4%. The proportion decreased to 53.3% in 2020 and subsequently rose to 60% in 2021. The inconsistent academic achievement of students in the subject, as well as the failure of students to achieve a minimum pass rate of 70% in the subject which according to Badmus and Omosewo (2018), is needed in vocational, science, and technological subjects for the technological advancement of a nation, is a cause of concern for educational stakeholders in the Nigerian educational system.

Several factors have been identified to be responsible for militating against students' academic achievements in Computer Studies both in internal and external examinations. These factors include the teaching methodology (Okekeokosisi & Okigbo, 2021a; Okekeokosisi & Okigbo, 2021b; Okoli & Ekebosi, 2019); students' behaviour (Bundasak, 2020); prior learning experiences and the difficulty of some Computer Studies concepts (Grover *et al.,* 2016). However, Ridner *et al.* (2016) and Adekitan and Noma-Osaghae (2019) argued that the research focus has long switched towards examining psychological factors such as academic stress that affect students' learning outcomes by influencing their physical and mental well-being.

Academic stress is the negative feelings that arise from having many academic obligations but inadequate resources, and it includes the views, attitudes, and behaviours of students towards

these demands (Alhie & Ohanaka, 2019). Fasoro *et al.* (2019) defined academic stress as the psychological burden that students suffer when they feel unable to successfully handle the many academic challenges they face. Based on the definitions, academic stress can be considered to be the product of students' feelings of incapacitation to handle the academic challenges they face. These feelings by students often result in mild to severe mental and physical health challenges such as anxiety, depression, and restlessness among others. Research has shown that Nigerian students undergo different levels of academic stress. For example, Fasoro *et al.,* revealed that about 67–94.2% of undergraduate students reported experiencing increasing levels of academic stress. Similarly, the study conducted by Aluh *et al.* (2020) revealed that approximately 35% of Pharmacy students experience a high level of stress prevalence. However, while a relatively larger body of literature exists on the subject of academic stress for undergraduate students in Nigeria, very little is known about it in secondary schools and Computer Studies. This research, therefore, adds to the limited body of literature on academic stress among secondary school students in Nigeria, and its effects on students' academic achievement in Computer Studies.

Several factors have been identified as contributors to academic stress. These factors, according to research findings (Noson & Shastri, 2016; Pascoe *et al.,* 2020; Pozos-Radillo *et al.,* 2014) include adapting to a new learning environment, managing a heavy school workload, experiencing pressure from parents, teachers, and peers to excel academically (often referred to as high academic expectations), examinations, test-taking, homework/assignments, active engagement in the classroom, engaging in healthy competition with peers, and worrying about receiving low grades. These academic stressors, which are sources of stress in students, can lead to different levels of academic stress. There are two distinct levels of academic stress: minimal/low level and severe/high level (Alhie & Ohanaka, 2019). A student considers a learning activity or academic demand challenging when they experience little or low levels of academic stress. Nevertheless, it can have a positive impact by fostering motivation and enhancing task performance. Conversely, students may perceive an academic activity as intimidating when they face intense or elevated levels of academic stress. The negative impact of this phenomenon manifests in the form of societal unrest, heightened levels of anxiety, and feelings of despair. Although there is a correlation between high academic stress and low student achievement, it is not certain that reducing academic stress will always lead to increased achievement. This situation is because students may see the learning task as unappealing and lacking stimulation (Uchil, 2017).

While several research findings such as Bello and Gumarao (2016), Gupta *et al.* (2017), and Tus (2020) have reported no relationship between academic stress and students' achievement, Watson and Watson (2016) argued that academic stress significantly influences students' academic achievement. According to some of the researchers, the influence of academic stress

often results in students dropping out of school. Also, studies such as Alhie and Ohanaka (2019), Llego *et al.* (2018) and Oduwaiye *et al.* (2017) have demonstrated that academic stress negatively impacts students' academic achievement through several channels such as anxiety, sleep disturbances, conflicts in interpersonal relationships, depression, and diminished self-esteem. Contrary to popular opinion, research such as that of Kumari and Gartia (2012) and Sahiba and Singh (2020) has shown a positive relationship between secondary school students' experiences of academic stress and their achievement. This unpopular argument can be attributed to some factors including the level of stress; which could be low/minimal and also the maturity and intelligence of these students that allow them to manage stressful conditions in school to their benefit. Thus, there are contradicting research findings on the relationship between students' experience of academic stress and their achievement.

Likewise, research findings have not provided a definite conclusion about gender disparity concerning academic stress and students' achievement. For instance, Ogbueghu *et al.* (2019) observed from the findings of their study that gender was an insignificant factor in students' experience of academic stress. However, Graves *et al.* (2021) and Kumari and Singh (2022) found that female students encounter significant academic stress compared to male students. Yet, Aihie and Ohanaka (2019) reported a higher stress level among male students. Regardless of the observed discrepancies in research findings, the effect of academic stress on students can be considered a sign of their inability to manage their emotions and those of others effectively. The observed discrepancies in research findings about academic stress and students' achievements, the scantiness of studies in Nigerian secondary schools and Computer Studies contexts, and the non-satisfactory performances of students in Computer Studies motivated the researchers to embark on this study. Specifically, the study sought to determine the:

1. predictive power of academic stress on secondary school students' achievement in Computer Studies in Awka Education Zone of Anambra State, Nigeria.
2. predictive power of academic stress on male and female secondary school students' achievement in Computer Studies in Awka Education Zone of Anambra State, Nigeria.

Research Questions

The following research questions guided the conduct of the study.

1. What is the predictive power of academic stress on secondary school students' academic achievement in Computer Studies in Awka Education Zone of Anambra State?
2. What is the predictive power of academic stress on male and female secondary school students' academic achievement in Computer Studies in Awka Education Zone of Anambra State?

Hypotheses

Two null hypotheses were tested at .05 level of significance:

1. Academic stress is not a significant predictor of academic achievement of secondary school students in Computer Studies in Awka Education Zone of Anambra State
2. Academic stress is not a significant predictor of academic achievement of male and female secondary school students in Computer Studies in Awka Education Zone of Anambra State.

Research Method

The study utilised a predictive correlation research design. Nworgu (2015) defines a correlational study as an investigation that aims to determine the link between two or more variables. The population of the study comprised 14,657 (6,346 males and 8,311 females) senior secondary school two (SS2) students enrolled in the 62 state government-owned secondary schools in Awka Education Zone for the 2023/2024 academic session. Taro Yamane's formula for calculating sample size was used to obtain a sample of 390 students offering Computer Studies. However, only 335 (128 males and 207 females) SS2 students, representing 85.9% of the sample size, who accurately completed the administered questionnaires were used for the study. The multistage sampling procedure involving three stages was used to obtain the sample from the five Local Government Areas making up Awka Education Zone. The Academic Stress Scale (ASS), adapted from the Perception of Academic Stress Scale (PAS) of Bedewy and Gabriel (2015) and students' proforma were used to collect data for this study. The ASS was validated by three experts from the Faculty of Education, Nnamdi Azikiwe University, Awka. The reliability test conducted on ASS at Onitsha Education Zone yielded a Cronbach alpha reliability coefficient of 0.62 which is considered to be reliable (Shi *et al.,* 2012). The researcher directly administered the research instruments with the assistance of two research assistants. To answer the research questions, the Pearson Product-Moment Correlation coefficient (R) and the coefficient of determination (R^2) were used to analyse the collected data. On the other hand, to test the null hypotheses, regression analysis was deployed to analyse the collected data. The decision rule is given as follows:

For research questions,

Coefficient (R)	**Decision**
0.8 – 1.00	High prediction
R > 0.30 and < 0.80	Moderate prediction
0.30 and below	Low prediction

For hypotheses, if the P-value is less than or equal to 0.05, the null hypothesis is rejected. However, if the P-value is greater than 0.05, the null hypothesis is not rejected.

Presentation of Results

Table 1: Pearson product-moment correlation and coefficient of determination of academic stress on students' academic achievement in Computer Studies

Model	R	R^2	Adjusted R^2	Std. Error	Change Statistics				
					R^2 Change	F Change	df_1	df_2	Sig. F Change
1	.038[a]	.001	-.002	18.896	.001	.493	1	336	.483

Table 1 reveals a prediction of academic stress on students' academic achievement in Computer Studies. The result revealed a low positive relationship between students' academic stress and their academic achievement scores (R = 0.38). Also, the result revealed that academic stress predicts students' achievement in Computer Studies (R^2 =.001). This implies that academic stress predicts a 0.1% change observed in students' academic achievement in Computer Studies.

Table 2: Pearson product-moment correlation and coefficient of determination of male and female students' academic stress on academic achievement in Computer Studies

Gender	Model	R	R^2	Adjusted R^2	Std. Error	Change Statistics				
						R^2 Change	F Change	df_1	df_2	Sig. F Change
Male	1	.057[a]	.003	-.005	20.001	.003	.420	1	127	.518
Female	1	.067[a]	.005	.000	17.932	.005	.941	1	206	.333

Table 2 shows the prediction of male and female students' academic stress on their academic achievement in Computer Studies. The results reveal low positive relationships between male (R = .057) and female (R = .067) students' academic stress and academic achievement in Computer Studies respectively. More so, the results reveal that male (R^2 = .003) and female (R^2 =.005) students' academic stress predicts their academic achievement in Computer Studies. The result implies that whereas male students' academic stress predicts 0.3% of the variance observed in students' achievement in Computer Studies, female students' academic stress predicts 0.5% of the observed changes.

Table 3: Regression analysis of the prediction of academic stress on student's academic achievement in Computer Studies

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Academic Stress	.196	.279	.038	.702	.483	-.352	.744

Table 3 shows the result of the regression analysis of the prediction of students' academic stress on academic achievement in Computer Studies. The analysis did not show a significant model summary: $F(1, 336) = .493$, $P>0.05$, Adj $R^2 = -.002$ and $R^2 = .001$. This implies that academic stress did not show a significant prediction on students' academic achievement in Computer Studies ($\beta = 0.38$, $t = .702$, $P > 0.05$). Hence, hypothesis 1 was not rejected, which indicates that academic stress is not a significant predictor of SS2 students' academic achievement in Computer Studies in Awka Education of Anambra State.

Table 4: Regression analysis of the prediction of male and female students' academic stress on academic achievement in Computer Studies

Gender	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Male	Academic Stress	.314	.484	.057	.648	.518	-.644	1.272
Female	Academic Stress	.330	.340	.067	.970	.333	-.341	1.001

Table 4 shows the result of the regression analysis of the prediction of male and female students' academic stress on academic achievement in Computer Studies. The analysis shows a non-significant model summary for male and female students respectively $F(1, 127) = .420$, $P > 0.05$, Adj. $R^2 = .003$, R^2 change $= .003$; $F(1, 206) = .941$, $P > 0.05$, Adj. $R^2 = .005$, R^2 change .005. The analysis shows that male ($\beta = .057$, $t = .648$, $P > 0.05$) and female ($\beta = .067$, $t = .970$, $P > 0.05$), hence, hypothesis 2 was not rejected. This implies that SS2 male and female students' academic achievements in Computer Studies were not predicted by academic stress in Awka Education Zone of Anambra State.

Discussion

The findings of the study showed a low positive relationship between academic stress and students' achievement in Computer Studies. Also, the findings showed that academic stress contributed only 0.1% of the variance observed in the achievement of the students in the subject. However, the findings from the hypothesis tested indicated that the prediction of students' achievement by their experience of academic stress is not significant. Although contrary to popular opinions, the observed low positive relationship between academic stress and students' achievement indicates that the academic stress experienced by the students investigated in the present study does not adversely affect their academic achievement. This finding can be explained

by students' perceptions of the academic stress they experience from academic stressors as low/minimal. This perception may have motivated the students to put more effort towards overcoming and enhancing their task performance; invariably leading to their improved academic achievement. The supposed perception of students in this study contradicts those of other students wherein studies observed a negative relationship between students' experience of academic stress and achievement. Students in those studies may have perceived the stress related to the academic stressors presented to them as high/severe and may have felt intimidated by them, leading to their experience of negative academic outcomes as a consequence.

The findings of this study corroborate the findings of Kumari and Gartia (2012) and Sahiba and Singh (2020) who observed a positive relationship between secondary school students' experiences of academic stress and achievement. However, the studies differ in their positions regarding the significance of the relationship between students' academic stress experience and their achievement. The present study shows that the prediction of achievement by students' academic stress experience is insignificant. Similarly, the findings of the present study contradict those of Bello and Gumarao (2016), Gupta *et al.* (2017), and Tus (2020) who reported no relationship between academic stress and students' achievement in the findings of their studies. Also, the findings contradict those of Watson and Watson (2016), Alhie and Ohanaka (2019), Llego *et al.* (2018) and Oduwaiye *et al.* (2017) who opined from the findings of their studies that academic stress negatively affects students' achievements via several channels such as anxiety, sleep disturbances, conflicts in interpersonal relationships, depression, and diminished self-esteem.

Regarding the moderating influence of gender on the prediction of students' academic achievement by their experience of academic stress, the findings of the study revealed low positive relationships between male and female students' experience of academic stress and their achievement in Computer Studies. Also, the findings showed that while male students' experience of academic stress predicts 0.3% of the variance observed in their achievement in the subject, female students' academic stress experience predicts a higher variance of 0.5%. However, the finding from the hypothesis testing reveals that the prediction of achievement by the students' experience of academic stress is not significant for both genders. The findings indicate that the male and female students investigated in this study share similar characteristics in their handling of stressful academic activities. That is, they face similar stressful academic activities and similarly respond to them. Thus, for the investigated students, gender is not a significant factor that can moderate the relationship between secondary school students' experience of academic stress and their achievement in Computer Studies. The findings of this study is in line with Ogbueghu *et al.* (2019), who posited from the findings of their study that gender is insignificant in moderating the relationship between students' experience of academic stress and their achievement. On the

contrary, the findings disagree with Aihie and Ohanaka (2019), Graves *et al.* (2021), and Kumari and Singh (2022) who posited that students' gender moderated the relationship between academic stress and achievement.

Conclusion

This study established the predictive power of academic achievement in Computer Studies by students' experience of academic stress. Based on the findings from the result, it can be concluded that the investigated students' experience of academic stress positively correlated with and predicted their achievements in Computer Studies, however, the prediction was not significant. The study further concluded that gender influence was not significant in the prediction of achievement by academic stress. These findings indicate that students' experience of academic stress does not affect their achievement in secondary school subjects such as Computer Studies in Awka Education Zone of Anambra State.

Recommendations

The following recommendations were made in the light of the findings of the study:

1. Students should learn to be optimistic about academic challenges and perceive them as a call for personal development.
2. Curriculum planners must be wary of academic stressors they include and present in the curriculum so as not to overwhelm students' capacities to navigate.
3. Computer Studies teachers should be careful of how they implement the Computer Studies curriculum in the classroom to avoid putting too much workload or pressure on the students.
4. Computer studies teachers as well as other educational stakeholders should not just focus on helping students attain cognitive intelligence. They should also give due attention to helping students navigate the daily challenges and stress associated with schooling.

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