

ACADEMIC RESILIENCE AND EMOTIONAL INTELLIGENCE AS PREDICTORS OF SECONDARY SCHOOL STUDENTS' PERFORMANCE AND ATTITUDE TOWARDS PHYSICS IN ENUGU STATE, NIGERIA.

Obinna Chigbo Anosike

Department of Physics, University of Nigeria Secondary School Enugu.
Obinnauregy@gmail.com

&

Ebele Chinelo Okigbo (Prof.)

Department of Science Education, Nnamdi Azikiwe University, Awka
ec.okigbo@unizik.edu.ng

Abstract

Academic resilience and emotional intelligence as co-predictors of secondary school students' performance and attitude towards Physics in Enugu State, Nigeria was investigated. Two research questions and two hypotheses guided the study. Predictive correlation research design was employed in the conduct of the study. The population involved 12,879 Senior Secondary two (SS 2) students offering Physics in the 297 public secondary schools in Enugu State. A sample size of 388 SS2 Physics students were drawn using multi-stage sampling procedure. Three instruments were used for data collection, namely; Simon Cassidy Academic Resilience Scale (ASR-30), the modified Mayer-Salovey-Caruso Emotional Intelligence Scale (MSCEIS) and the modified Fennema-Sherman Physics Attitude Scale (PAS). The unified promotion examination results of SS2 students in 2022/2023 academic year were used to determine the performance scores of the students in Physics. The instruments were validated by three experts from Faculty of Education, Nnamdi Azikiwe University, Awka. The coefficient of reliability was established through Cronbach Alpha method which yielded 0.71 ARS-30, 0.78 for MSCEIS and 0.77 for PAS respectively. The data collected were analyzed using moderated multiple regression analysis. The research questions were answered using the coefficient of determination (R^2) in the model table, while significant f-change in the model table were used to test the null-hypotheses at 0.05 alpha level. The findings showed that academic resilience and emotional intelligence jointly predicted attitude of students towards Physics but jointly failed to predict performance of students in Physics among other findings. The study concludes that academic resilience and emotional intelligence jointly affect attitude of students towards Physics. The study recommends that Government through ministry of education and school counsellors should regularly organize workshops and seminars to train teachers and students on the need to develop a high level of academic resilience and emotional intelligence so that students will develop positive attitude towards Physics learning.

Keywords: Academic Resilience, Emotional Intelligence, Performance, Attitude, Physics

Introduction

Physics deals with the study of laws that determine the structure of the universe with reference to matter and energy in the universe (Ike, 2014). It is a science subject that

explains the fundamental constituents of the universe, the forces that exert on one another, man's daily activities and his interaction with the universe were also explained (Jegede and Adebayo, 2013). According to Adeyemo (2012), the subject matter of Physics include measurements, units and dimension, speed and velocity, work, energy and power, circular motion, electric field, photoelectric effect, radioactivity and so on. Adeyemo added that the actual knowledge of Physics is the understanding of all the concepts of Physics.

The poor attitude of students towards Physics which might have resulted to the consistence decline in the academic performance of secondary school students in the subject in internal and external examinations is becoming so worrisome. The massive failure in external examination like WASSCE, NECO and JAMB is obvious that it is seen by all. In Nigeria, research conducted by Adamu and Sani (2012) has shown that attitude and performance of students in science related subjects is highly discouraging. The authors stressed further that most students were found to be depressed when it comes to science related subjects. Similarly, study conducted by Adamu, Jibrin and Bashir (2013) reported that the performance of students in science related 2subjects was also not encouraging. This decline according to Omole (2015) might be caused by factors like the non-challans attitude of students to classes, qualification of the teacher, students' internal psychological characteristics such as students' academic anxiety, academic locus of control, academic motivation, academic resilience and emotional intelligence.

Empirical studies from scholars such as Osenwegwor (2018), Adeyemi (2019) have shown that two major factors affecting the attitude and academic performance of students is academic resilience and emotional intelligence. The study conducted by Fallahzadeh (2011) reported that emotional intelligence is a strong predictor of academic performance of students. Similarly, Nwadinigwe and Azuka-Obieke (2012) also reported that emotional intelligence has a significant positive relationship of academic performance of students. In the same lane, the study of Adeyemi et al (2019) reported that academic resilience and emotional intelligence promotes individual understanding of concept and attitude towards learning. Likewise, Osenwegwor (2018) opined that emotional intelligence is non-cognitive abilities that affect knowledge, skills and attitude of students in school. The assertions indicated that academic resilience and emotional intelligence has strong influence on attitude and academic performance of students in mathematics and sciences.

Some studies had suggest that academic resilience is a major predictive factor while others suggest that emotional intelligence predicts academic performance (Parker, Summerfield, Hogan & Majeski, 2014). Conversely, Edward and Warelou (2015) maintained that attitude and performance of a student involve both emotional intelligence and academic resilience. However, Armstrong, Galligan, and Critchley (2012) proposed that emotional intelligence is related directly to academic resilience, in that emotionally intelligent behavior in times of stress is adaptive. This suggests that both construct may affect secondary school students' performance and attitude towards Physics learning.

Researchers have been measuring the influence of cognitive and pedagogical approaches on attitude and academic performance of students in Physics. For instance, Adamu, Jibrin and Bashir (2015), Adamu, Bashir and Jirbrin (2013), Adamu and Kusa (2018) have conducted studies that focused on entry points, entry grades, teaching

approach but none of the study assess the non-cognitive factors, hence the present study assessed Academic Resilience and Emotional intelligence as co-predictors of secondary school students' performance and attitude towards Physics in Enugu state, Nigeria which the present study covered the existing gap.

Purpose of the Study

The purpose of the study was to determine academic resilience and emotional intelligence as co-predictors of secondary school students' performance and attitude towards Physics in Enugu state, Nigeria. Specifically, the study sought to find out:

1. Joint contribution of academic resilience and emotional intelligence in predicting the academic performance of secondary school students in Physics in Enugu state.
2. Joint contribution of academic resilience and emotional intelligence in predicting the attitude of secondary school students towards Physics in Enugu state

Research Questions

Two research questions guided the study.

1. What is the joint contribution of academic resilience and emotional intelligence in predicting the academic performance of secondary school students in Physics in Enugu state?
2. What is the joint contribution of academic resilience and emotional intelligence in predicting the attitude of secondary school students towards Physics in Enugu state?

Hypotheses

Two null hypotheses were formulated and tested at 0.05 level of significance.

1. Joint contribution of academic resilience and emotional intelligence in predicting the academic performance of secondary school students in Physics in Enugu state is not significant.
2. Joint contribution of academic resilience and emotional intelligence in predicting the attitude of secondary school students towards Physics in Enugu state is not significant.

Methods

Predictive correlation research design was employed in the study. The design is preferred because data were collected and analyzed using regression analysis in order to ascertain the contributions of Senior Secondary two (SS2) students' academic resilience in predicting their attitude to and performance in Physics. The population of the study is 12,879 SS2 students offering Physics in the 297 Public Secondary Schools in 2022/2023 academic year in Enugu state, Nigeria. A sample size of 388 SS2 Physics students offering was selected using multi-stage sampling procedure involving purposive and simple random sampling techniques. Three instruments were used for data collection, namely; Academic Resilience Scale (ARS-30), Mayer –Salovey-Caruso Emotional Intelligence scale (2012) (MSCEIS) and Fennema-Sherman physics attitude scale (PAS). The three instruments were adapted by the researcher. Academic Resilience Scale (ARS-30) was developed by Simon Cassidy in 2016 to measure the Academic Resilience of secondary school students.

The researcher adapted the scale to measure Physics students' Academic Resilience attribution of their academic success and failure. The scale is modified so as to fit specifically Physics students in so far as the original scales were made for general purpose. The scale instrument is a 30-item scale and the whole scale is adapted for the study. The participants' responses were obtained using 4-point rating scale ranging from strongly agree to strongly disagree.

Mayer–Salovey-Caruso Emotional Intelligence scale (MSCEIS,2012) is a 42-item instrument developed by Mayer –Salovey-Caruso in 2012 to assess the Emotional Intelligence of secondary school students based on Mayer and Salovey ability based theory on Emotional intelligence. These 42 items were selected from the 134 items of the whole scale. The modification is purposefully to fit specifically Physics students in so far as the original scales were made for general purpose. The unused items are considered triplicate of dimension of the academic work in which the scale is based. The participants' responses was measured using 4-point rating scale ranging from strongly agree to strongly disagree.

Fennema-Sherman Physics attitude scale is a 40-item instrument developed by Fennema-Sherman in 2012 to assess the attitude of secondary school students. These 40 items were selected from the 47 items of the whole scale. The modification is purposefully to fit specifically Physics students in so far as the original scales were made for general purpose. The unused items are considered irrelevant to the academic work in which the scale is based. Participants' responses was measured using 4-point rating scale ranging from strongly agree to strongly disagree. Also, SS2 Students' performance scores in Physics for the 2022/2023 academic year was used to represent their performance score for the study. The Scores were collected from the result perfoma through school records in the sampled schools.

The instruments were validated by three experts from Nnamdi Azikiwe University, Awka. The reliability of the instruments was established using Cronbach Alpha. The internal consistency reliability coefficient of 0.71, 0.78 and 0.77 was obtained for ARS, MSCEIS and PAS respectively. The researcher with the help of three Physics teachers in the sampled schools, who were briefed and exposed to the objectives of the study, administered the copies of the instruments to the respondents. The respondents were given enough time to express their honest feelings without bias. The copies of the instruments were collected from the respondents immediately after completion to ensure maximum 100% copies retrieved. With the names of students, their schools and gender on the instruments, their results were easily located and retrieved for use. The data collected for the study were analyzed statistically using moderated multiple regression analysis. In testing the hypothesis, anull hypothesis was rejected when p-value is less than or equal to the significance level of 0.05 ($P \leq .05$) otherwise, ($p > .05$) it was not rejected.

Results:**Table 1: Joint contribution of academic resilience and Emotional intelligence in predicting the academic performance of secondary school students in Physics.**

Model summary									
model	R	R ²	R ² std Adj	R ² Error	R ² Change	F Change	Df ₁	Df ₂	Sig. F Change
1	.094 ^a	.009	.004	16.79262	.009	1.718	2	385	.181
2	.107 ^b	.012	.001	16.81343	.003	.524	2	383	.593

Table 1 displays the model summary of the Joint contribution of academic resilience and Emotional intelligence in predicting the academic performance of secondary school students in Physics. Table 1 shows that the coefficient of determination (R^2) = .009. This proves that both independent variables (academic resilience and emotional intelligence) predicted only .9% performance of students in Physics with $F(2, 386) = 1.718$, $p < .181$, both variables (academic resilience and emotional performance) jointly failed to predict performance in Physics thus hypothesis 1 is not rejected. Hence, the joint contribution of academic resilience and emotional intelligence in predicting the performance of secondary school students in Physics in Enugu State is not significant.

Table 2: Joint contribution of academic resilience and Emotional intelligence in predicting the attitude of secondary school students towards Physics.

Model summary									
model	R	R ²	R ² std Adj	R ² Error	R ² Change	F Change	Df ₁	Df ₂	Sig. F Change
1	.496 ^a	.246	.242	10.56497	.246	62.661	2	385	.0005
2	.509 ^b	.259	.252	10.49456	.014	3.581	2	383	.029

Table 2 displays the model summary of the academic resilience and emotional intelligence in predicting the attitudes of students in Physics. Table 2 shows that the coefficient of determination (R^2) = .246. This proves that both variables academic resilience and emotional intelligence predicts 24.6% of attitudes of the students to Physics with $F(2, 385) = 62.661$, $p < .000$; thus hypothesis 2 is hereby rejected. Hence academic resilience and emotional intelligence jointly predicted attitude of students to Physics significantly.

Discussion

Results of the study revealed that both academic resilience and emotional intelligence jointly predicted attitude of secondary school students to Physics significantly. The finding agrees with the finding of Osenwegwor (2018) whose assertions indicated that academic resilience and emotional intelligence has strong influence on attitude of students. The finding also agrees with the finding of Mwangi, Ileri and Mwaniki, (2017) who reported in their studies that there was a significant strong positive relationship between academic resilience, emotional intelligence and attitudes of students towards learning. This supports the notion that academically resilient and emotionally intelligent students exhibit good attitude during learning.

The results also proved that the joint contribution of academic resilience and emotional intelligence in predicting the performance of secondary school students in Physics in Enugu State is not significant. On the contrary, the finding is not in agreement with the findings of Adeyemi (2019) where he established that there was a strong positive correlation between academic resilience, emotional intelligence and academic performance, and that academic resilience and emotional intelligence positively predict performance.

Conclusion:

Based on the findings presented and discussed in the study, it was concluded that academic resilience and emotional intelligence significantly predicted attitude of students to Physics learning but failed to predict the performance of secondary school students in Physics. Therefore, academic resilience and emotional intelligence jointly affects students' attitude towards Physics but do not affect their academic performance in Physics.

Recommendations

1. Governments, professional bodies, school managements and administrators should regularly organize seminars, trainings and workshops to equip and train the teachers and students on the needs of developing a high level of academic resilience.
2. Curriculum planners and policy makers should incorporate psychological traits like academic resilience skills in the curriculum and educational programmes in order to promote attitude and performance of students.
3. School counselors from the psychological counseling units established in secondary schools should help to train the students to develop high academic resilience skills in order to cope during losses situations and develop effective leadership skills.

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