Locus of Control and Self-Efficacy as Correlates of Secondary School Students' Academic Achievement in Enugu State, Nigeria

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Abstract

The growing rate of poor academic achievement of secondary school students and the contradictory results on the influence of locus of control and self-efficacy on academic achievement from previous studies warranted the study. The study assessed locus of control and self-efficacy as correlates of secondary school students' academic achievement. Three research questions and two null hypotheses were formulated and posed respectively to guide the study. The hypothesis was tested at 0.05 level of significance. The study adopted a correlational survey research design. A sample of 500 SS3 students drawn by using multi-stage sampling procedures (simple random and proportionate stratified sampling technique) participated in the study. Locus of Control and Self-efficacy Questionnaire (LOCSEQ) and Students' Academic Achievement Spreadsheet (SAAS) were used for data collection. The instruments were face-validated by three experts. Cronbach's Alpha was used to determine the internal consistency of the questionnaire items and reliability coefficients of 0.81, 0.76 for clusters A and B respectively were obtained. Data collected were analyzed using regression analysis. The results showed that 35% and 32% of the variation in students' academic achievement in physics is attributed to locus of control and self-efficacy respectively. Locus of control and self-efficacy significantly predicted students' academic achievement. The study recommended, among others, that students must be made to understand that hard work and active participation during teaching and learning process is the key to academic success and that one's ability determines one's success in school.

Keywords: Locus of control, Self-efficacy, Secondary school, Students' achievement

Introduction

Locus of control is a personality trait propounded by Julian Rotter in 1954 within the framework of social learning theory. It is used in personality psychology to refer to causation as perceived by individuals in response to personal outcomes or other events (Rotter, 1966). It is a belief system regarding causes of a person's experiences and factors affecting success or failure either in general or in a specific area such as academic achievements (Barzegar, 2011). Locus of control is seen as the way a student accounts for personal achievements and failures in school (Cetinkalp, 2010). Locus of control can be internal or external (Jacobs-Lawson et al., 2001; Araromi, 2010). Internal locus of control is described as a person's believe that his rewards or punishments depend on his own efforts (Cummings & Swickert, 2010) while external locus of control is characterized by the feeling that outcomes are more as a result of fate, luck, chance, or control of powerful forces (Dağ, 2002). According to Sarıçam and Duran (2012), students who

have internal locus of control believe that their successes/failures are as a result of their efforts and abilities. On the other hand, students who have external locus of control believe that their successes/failures are as a result of fate or luck (Sarıçam & Duran, 2012). Such students believe that they have no control over the events in their lives and that there are other individuals or external forces that control events in their lives (Rotter, 1990; Akın, 2011).

In relation to achievement, students' locus of control may influence their attitude towards teaching and learning process (Arslan, Dilmaç, & Hamarta, 2009; Atik, 2006). Studies carried out by Adekunle (2014) and Razmefar (2014) revealed that locus of control predicts students' academic achievement. Abdullah (2000) and Bozorgi (2009) investigations found that locus of control does not predict academic achievement. This shows that the influence of this variable on achievement is inconclusive. In order to bridge this gap, this study therefore wants to find out if students' academic achievement can be attributed to locus of control. In addition to locus of control, another psychological variable associated with academic achievement according to Yeşilyurt (2014) is self-efficacy.

Self-efficacy is seen as an individual believe in what he/she can accomplish using his or her skills under certain conditions. According to Gecas (2004), self-efficacy functions as a self-fulfilling prophecy. It is an individual's sureness in his or her abilities to successfully perform a particular task or achieve a goal (Hawthorne, 2004). In other words, self-efficacy is defined in terms of how individuals perceive their capabilities to attain designated types of performance and achieve specific results. Self-efficacy is seen as a student's belief in his/her capabilities to do well academically or achieve a goal or an outcome. High self-efficacy students according to Hassan et al. (2015), view challenging problems as tasks to be mastered, develop deeper interest in the activities in which they participate, recover quickly from setbacks and disappointments. In addition, students with a low sense of self-efficacy avoid challenging tasks, believe that difficult tasks and situations are beyond their capabilities, focus on personal failings and negative outcomes and they quickly lose confidence in personal abilities. However, trust in one's abilities and powers for learning and achievement is a key for academic success of students (Hill, 2002). Self-efficacy, according to Bandura (1977) is related to academic achievement.

From literature, a number of studies have presented self-efficacy as a predictor of academic achievement (Duckworth et al., 2007; Adedeji et al., 2009; Razmefar, 2014). In contrast, a study that examined self-efficacy as a predictor of students' academic achievement by Choi (2005); Adu and Oshati (2014), revealed that self-efficacy was not a significant predictor of achievement. Based on these contradictory findings among researchers, the issue of the influence of locus of control and self-efficacy on student's academic achievement needs to be

further investigated. This is to objectively establish the proportion of variation in students' academic achievement that can be attributed to or predicted by these variables.

Purpose of the Study

The main purpose of this study was to determine the extent to which locus of control and self-efficacy predicted students' academic achievement. Specifically, the study assessed the:

1. proportion of variation in students' academic achievement that can be attributed to or predicted by locus of control and self-efficacy.

2. proportion of variation in students' academic achievement that can be attributed to or predicted by locus of control and self-efficacy.

3. regression model obtained from the study serve as a theoretical model for predicting students' achievement based on the knowledge of locus of control and self-efficacy. That means with this model, one can predict a student's academic achievement given values of locus of control and self-efficacy.

Research Questions

The following research questions guided the study

1. What proportion of the variation in students' academic achievement is attributed to or predicted by locus of control?

2. What proportion of the variation in students' academic achievement is attributed to or predicted by Self-efficacy?

3. What regression model/equation can be used in predicting students' academic achievement given values of locus of control and self-efficacy?

Hypotheses

The following null hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

1. Locus of control does not significantly predict students' academic achievement

2. Self-efficacy does not significantly predict students' achievement

Materials and Methods

Study Design

This study adopted a correlational survey research design and was conducted in Enugu State, Nigeria. The state has six education zones which include: Enugu education zone, Awgu education zone, Agbani education zone, Nsukka education zone, Obollo-Afor and Udi education zones. The choice of this area is informed by the increasing rate of poor academic performance of students and several reports and observations by experts pointing to the way students' perceive success and failure as the major cause of poor performance of students.

Population of the Study

The population consist of 20,224 SSS3 students of 2019/2020 academic session in all the 290 government owned secondary schools in Enugu State. (Source: Post Primary Management Board Enugu State, 2021).

Sampling Procedure

A sample of 500 SS3 students was used for the study. The choice of SS3 students is because it is assumed that they have been taught mostly all the various concepts in the curriculum and are getting ready for WAEC and other external examinations. A multi-stage sampling procedure was adopted for this study. In the first stage, simple random sampling technique by balloting with replacement was used to sample three education zones (Enugu, Obollo-Afor, and Nsukka). The names of the local governments were written on a piece of paper, folded and put in a container, shuffled and the researcher drew the local government areas with replacement (i.e. balloting with replacement). At the second stage, simple random sampling technique with replacement was also used to draw six local government areas (Isi-Uzo, Enugu North, Nsukka, Igbo-Etiti, Igbo-Eze South, and Udenu) from the selected three education zones. At the third stage, proportionate stratified sampling technique was used to sample fifteen (15) secondary schools from the six selected local government areas and this yielded two secondary schools from Isi-Uzo local government area; one from Enugu North; three from Udenu; two from Igbo-Eze South; five and two schools were selected from Nsukka and Igbo-Etiti local government areas respectively. In the fourth stage, proportionate stratified sampling technique was also used to sample 53 students from Isi-Uzo local government area; 49 from Enugu North; 77 from Udenu; 72 from Igbo-Eze South; 162 and 87 students were selected from Nsukka and Igbo-Etiti local government areas respectively. Proportionate stratified sampling technique was used in the third and fourth stages because the number of schools and students in the six local government areas are not equal.

Method of Data Collection

Two instruments were used for data collection (questionnaire and students' academic achievement proforma). The questionnaire titled "Locus of Control and Self-efficacy Questionnaire" (LCSEQ) was developed by the researcher. The questionnaire was grouped into two sections; section A and section B. Section 'A' sought information on students' demographic data such as: name of school, identification number and students' class. While section 'B' consists of two clusters (I and II). Cluster I consists of 11 items relating to locus of control while Cluster II consists of 8 items relating to self-efficacy. The questionnaire has a total of 19 items modeled on a four (4) point rating scale. The response options for the items were – Strongly Agree (SA); Agree (A); Disagree (D) and Strongly Disagree (SD) with numerical values of 4, 3 2, and 1 points assigned to each of the responses respectively. On the other hand,

"Students' Academic Achievement Proforma" (SAAP) designed by the researcher was used to collect the students' end of session results (which is the mean or average score of the three ends of term's examination) of the sampled students.

The instruments (Locus of Control Questionnaire (LCQ) and Students' Academic Achievement Proforma (SAAP) were face-validated by three experts; two experts in Measurement and Evaluation from the Department of Science Education and one expert in education psychology from the Department of Educational Foundations, all from University of Nigeria, Nsukka. The experts were requested to assess the instrument with regard to the clarity of items, simplicity of vocabulary and relevance of items to the study. Based on the observations of these experts, the research instruments were modified appropriately.

The instrument was trial tested on 20 SS3 students in 4 secondary schools in Enugu East in Enugu Education zone which was not part of the sampled Local Government Areas. In order to determine the internal consistency of the items, the responses of the students were subjected to Cronbach's Alpha reliability estimate and the reliability coefficient of 0.81, 0.76 for clusters A and B respectively were obtained.

Method of Data Analysis

Data collected for this study were analyzed using regression analysis. The coefficient of determination (r^2) was used to answer the research questions 1 and 2 while research question 3 was answered using the regression model/equation. The null hypotheses were tested using the regression ANOVA F-statistic at 0.05 level of significance. Specifically, the t-test and F-test were used to test for the significance of the regression coefficient and the regression model. A Correlation coefficient of 0.00 was regarded as no relationship, 0.01 to 0.29 was regarded as low relationship, 0.30 to 0.79 was regarded as moderate relationship and correlation coefficient of 0.80 and above was regarded as high relationship (Nworgu, 2015).

Results

Table 1: Pearson's Product Moment Correlation Analysis of the Proportion of Students' Academic Achievement that is Predicted by Locus of Control

Variable	$\overline{X}$	SD	N	r	r^2
Locus of Control	55.41	12.25	500	0.59	0.35
Students' Achievement	68.61	13.92			

$\alpha = 0.05$, R^2 = coefficient of determination

The result shows that the correlation coefficient obtained was 0.59. This means that there exists a moderate positive relationship between locus of control and students' academic achievement. Table 1 also shows that the coefficient of determination (r^2) associated with the

correlation coefficient of 0.59 was 0.35. This coefficient of determination (r^2) also indicates that 35% of the variation in students' academic achievement is attributed to or predicted by locus of control.

Table 2: Pearson's Product Moment Correlation Analysis of the Proportion of Students' Academic Achievement that is Predicted by Self-Efficacy

Variable	$\overline{X}$	SD	N	r	r^2
Self-efficacy	54.63	12.45	500	0.57	0.32
Students' Achievement	68.61	13.92			

$\alpha = 0.05$, R^2 = coefficient of determination

The result shows that the correlation coefficient obtained was 0.57. This means that there exists a direct positive and moderate relationship between self-efficacy and students' academic achievement. Table 2 also shows that the coefficient of determination (r^2) associated with the correlation coefficient of 0.57 was 0.32. This coefficient of determination (r^2) indicates that 32% of the variation in students' academic achievement is attributed to or predicted by motivation.

Table 3a: Regression Model

Model Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (constant)	30.68	2.34		13.10	0.00
Locus of Control 0.53	0.10	0.47	5.26	0.00	
Self-Efficacy 0.47	0.11	0.45	4.60	0.00	

Dependent Variable: Students' Academic Achievement (SAA)

Table 3b: **Model Summary**

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	0.60	0.36	0.35	11.19

1. Predictors: (Constant), Locus of Control (LOC), Self-Efficacy (SE)

From Table 3a, the regression model in raw score form is: SAA = 0.53LOC + 0.47SE + 30.45 while the regression model in standard score form is $Z_{SAA} = 0.47Z_{LOC} + 0.45_{SE}$. From the regression model, the two predictor variables proved potent at predicting secondary school students' academic achievement to an appreciable extent with the locus of control having the highest predictive capacity followed by self-efficacy. The regression model shows that one unit change in locus of control will produce 0.53 change in students' academic achievement and also

one unit change in self-efficacy will produce 0.47 change in students' academic achievement while 30.68 is the level of secondary school students' academic achievement without the influence of the predictor variables, that is, locus of control and self-efficacy. The result in Table 3b seeks to find out how much of the overall variance of students' academic achievement in physics is predicted by the two predictor variables in the study. The result shows that the relationship between the predictor variables and the criterion variable (i.e. students' academic achievement) was 0.66 and the coefficient of determination (r^2) was 0.36. This means that the model as a whole explained 36% of the total variance of students' academic achievement. This also means that 36% of students' academic achievement is predicted or accounted for by the predictor variables – locus of control and self-efficacy.

Table 4: ANOVA F-test for the significance of regression: Locus of control and students' academic achievement

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	34152.708	1	26267.421	271.763	.000
Residual	62584.020	498	121.264		
Total	96736.728	499			

α = 0.05

The result in Table 4 shows that an F-ratio of 271.763 with an associated exact probability value of 0.00 was obtained. This probability value of 0.00 was compared with 0.05 set as the level of significance for testing the hypothesis and it was found to be significant because 0.00 is less than 0.05. The null hypothesis which stated that; locus of control does not significantly predict students' academic achievement was therefore rejected. The inference drawn was that locus of control significantly predicts students' academic achievement. In other words, locus of control is a good predictor of students' academic achievement.

Table 5: ANOVA F-test for the significance of regression: self-efficacy and students' academic achievement

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	31010.506	1	31010.506	234.963	.000
Residual	65726.222	498	131.980		
Total	96736.728	499			

α = 0.05

The result in Table 5 shows that an F-ratio of 234.963 with an associated exact probability value of 0.00 was obtained. This probability value of 0.00 was compared with 0.05

set as the level of significance for testing the hypothesis and it was found to be significant because 0.00 is less than 0.05. The null hypothesis which stated that; self-efficacy does not significantly predict students' academic achievement was therefore rejected. The inference drawn was that self-efficacy significantly predicts students' academic achievement. In other words, self-efficacy is a good predictor of students' academic achievement.

Discussion

The finding of the study in Table 1 showed that there exists a moderate and positive relationship between locus of control and secondary school students' academic achievement. The result also showed that 35% of students' academic achievement is predicted by locus of control. Besides, the corresponding hypotheses showed that locus of control significantly predicted students' academic achievement. This finding is consistent with the earlier findings by Onyekuru and Ibegbunam (2014) who found that there was a positive significant relationship between locus of control and students' academic achievement. Similarly, Adekunle (2014) found that locus of control was effective in determining academic achievement of the adolescents. Supporting, SheikiFini, and Yousefzadeh (2011) found significant and positive correlation between achievement motivation, locus of control and educational promotion, observing that students with internal locus of control believe that their educational achievement and grades depend on their effort and their planning. This indicates that locus of control influences their academic achievement positively or negatively. In contrast, Bozorgi (2009) found that locus of control has no relationship with students' academic achievement. Also, Razmefar (2014) found that a negative and significant relationship exists between locus of control and academic achievement.

The finding of the study in Table 2 showed that there exists a moderate and positive relationship between self-efficacy and students' academic achievement. The result showed that 32% of students' academic achievement in physics is predicted by self-efficacy. This result is in agreement with earlier findings by a study carried out by Shkullaku (2013) who found a significant relationship between the students' self-efficacy and academic performance. Also, Adedeji, Adeyinka and Olufemi (2009) that locus of control, interest in schooling and self-efficacy jointly and relatively contributed significantly to the prediction of academic achievement of junior secondary school students. In contrast, Adu and Oshati (2014) and Razmefar (2014) in their separate studies found that self-efficacy has no significant relationship with students' academic achievement. The result also revealed that self-efficacy significantly predicted students' academic achievement. This implies that when students believe in his/her ability they tend to achieve better academically. Also according to Bandura (1997), students

who have a sense of efficacy in mastering academic task tend to learn better in formal school environment.

The finding of this study in Table 3 showed that the regression model in raw score form is SAA = 0.53LOC + 0.47SE + 30.45 while the regression model in standard score form is Z_{SAA} = $0.47Z_{LOC} + 0.45_{SE}$. From the regression model, the two predictor variables proved potent at predicting students' academic achievement to an appreciable extent with locus of control having the highest predictive capacity followed by self-efficacy. The regression model shows that one unit change in locus of control and self-efficacy will produce 0.53 and 0.47 change in students' academic achievement respectively. The result also showed that the model as a whole as a whole explained 36% of the total variance of students' academic achievement. This also means that 36% of students' academic achievement is predicted or accounted for by the predictor variables – locus of control and self-efficacy.

Conclusion

The following conclusions are drawn from the findings of the study. The study showed that locus of control and self-efficacy significantly predicted secondary school students' academic achievement. The regression model in raw score and standard score form are SAA = 0.53LOC + 0.47SE + 30.45 and ƵSAA = 0.47ƵLOC + 0.45SE. From the regression model, the two predictor variables proved potent at predicting students' academic achievement to an appreciable extent with locus of control having the highest predictive capacity followed by self-efficacy. This model, therefore, provides information required by teachers and other stakeholders in education in understanding the influence of these variables on secondary school students' academic achievement and thereby providing real opportunity for the use of this information in predicting students' achievement. It gives stakeholders the opportunity to understand and to be in a position to help improve students' academic achievement in our secondary schools.

Recommendations

Since locus of control and self-efficacy significantly predicted academic achievement, students must be made to realize that hard work is the key to success and that one's ability determines one's success. Students should also remove entirely from their mind the feeling/believe that success in one's life depends on luck. School administrators need to strengthen Parents Teachers Associations (PTAs) where both parents/guardian and teachers will be educated on the need to help boost their ward's /students' self-efficacy through praising efforts made by the students and not the end products when the students achieve a particular objective. Teachers should also create an enabling environment that will encourage students to participate actively in class through asking of questions and making contributions during

teaching and learning process. It will help them to learn that success or failure depends more on the effort one puts into an academic activity than on anything else. The government should recruit in our secondary schools more professionals in guidance and counseling so that the students will be guided properly towards improving their personality positively.

Implications of the Study

The finding on the locus of control variable implies that parents/guardians and teachers have a big role to play in shaping students mindset and world view. This will help students to learn that success or failure depends more on the effort one puts into an academic activity. The findings of the study also show that self-efficacy significantly predicted secondary school students' academic achievement. It implies that teachers should aim to deliver instructions in a way that maximizes the opportunity for mastery experience and promote co-operative learning strategies among students. Mutual interaction and verbal expression should enhance self-efficacy of secondary school students.

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