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Students Engagement Variables as Correlates of Academic Achievement in Economics in Senior Secondary Schools in Anambra State, Nigeria

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Abstract: ***Evidence of poor academic achievement of senior secondary school students abounds in literature and can be seen in the rate of failure of students in the national examinations organised by WAEC, NECO and JAMB. Achievement is likely to be enhanced if students are engaged. Student engagement, which is the students' psychological investment in an effort directed towards learning, understanding or mastering the knowledge, skills or crafts that academic work is intended to promote, has been identified as one of the few factors that consistently and positively influence educational outcomes for adolescents. The more engaged a student is, the better he performs at school. The purpose of this study was to compare the levels of engagement of students with their cognitive (academic) achievement in Economics in secondary schools in Anambra State. Guided by three research questions and three hypotheses, the study adopted a correlation Survey Design. The population for the study comprised 4,937 students of senior secondary schools in Anambra State. Out of this, a sample size of 200 students in 10 boys' schools and 10 girls' schools was taken. The Student Engagement Questionnaire (SEQ), measuring the three engagement types and as well as Economics Achievement Test (EAT) were used for data collection. The reliability index was determined using Factor Analysis. Data were collected and analyzed using aggregate scores and mean to answer the research questions and the regression analysis to test the hypotheses at 0.05 level of significance. The findings showed among others that there is a high engagement among senior secondary school students in the state. Since the three engagement types had mean scores above 2.50, it is therefore concluded that the more engaged a student is, the better he/she achieves in school. Out of the three engagement types measured, the students reported moderate in cognitive but high in behavioural and emotional engagements. One can therefore conclude that moderate engagement may be sufficient for a good academic achievement. It was thus recommended among others that a campaign which focuses on the importance of school and the consequences of disengagement from school be carried out regularly by the government agencies and other stakeholders in education. If students can be made to see the link between working hard at school and being successful in life, engagement levels will be significantly raised and academic achievement be greatly enhanced.***

Keywords: Engagement; Variables; Academic Achievement; Economics; and Senior Secondary Schools.

1. Introduction

Education is widely acknowledged as a tool for national development. Not only is it the greatest force that can be used to bring about redress, it is the greatest investment that the nation can make for quick development of its economic, political, sociological and human resources. (Fafunwa, 2001) Furthermore, education is seen as an instrument for individual and social development. The future of any nation depends to a very large extent on the products of its educational system. This underscores the need for the right kind of education which will in turn produce people who are adequately prepared "for useful living within the society" (Federal Republic of Nigeria, 2004:18).

For students to be adequately prepared for useful living within the society and also for the secondary school students to advance into institutions of higher learning there has to be an acceptable level of academic achievement on the part of these students. For there to be an acceptable level of academic achievement (performance), there has to be meaningful learning and for meaningful learning to take place, the students have to be fully engaged. In other words, if students are to live happy and productive lives in the complex world of the 21st century, students need to achieve a wide range of schooling outcomes. Achievement is likely to be enhanced if students are engaged and motivated to learn (Education Review Office. n d).

The term student engagement refers to "a psychological process, specifically; the attention, interest and investment and effort students expend in the work of learning" (Marks, 2000:153). Students are engaged when they are involved in their work, persist despite challenges and obstacles, and take visible delight in accomplishing their work.

There are three types of engagement: behavioural, cognitive and emotional. Anderson, Christenson and Lehr (2004:65) stated that;
Engagement is much more than time students spend on task: rather, students' engagement with school and learning includes their behaviour (eg attendance and participation), cognition (eg value of education, relevance to future, self-regulation), and psychological/ interpersonal experiences (eg feeling that he or she belongs at school, relationships with teachers and peers).

Student engagement with school represents a common term to describe student relationship with school. It is one of the terms and variables used to measure student and school relationships. Other related terms to student engagement in health and education literature include; school attachment, school bonding, school climate, school involvement, school engagement, teacher support and school connectedness,(Libbey, 2004). All these terms are used to describe students who are intellectually, socially, and emotionally engaged with school. Student engagement is used to discuss students' attitudes towards school while

student disengagement identifies withdrawing from school in any significant way, (Willms, 2003). Student engagement has been identified by Anderson, et al., (2004), as the most important concept in preventing school dropout or promoting completion. Lack of engagement with school is seen as a cause for early school leaving and reduces the likelihood of going on to further education. This has obvious consequences as failure to obtain even the most basic educational credentials (academic achievement) or acquire the basic skills needed to function in the society which increases dramatically the risk of unemployment, poverty, poor health, and involvement in crime.

In educational institution, success is measured by academic achievement or how well a student meets set standards. In other words, a student's success is generally judged by examination performance while the best criterion of performance is the sum of the students' performance in all the subjects taken.

Academic achievement is commonly measured by examinations or continuous assessment tests. But there is no general agreement on how it is best tested or which aspects are most important. The pattern of grading students in the Senior School Certificate Examination is such that Distinction is represented by A1, B2 and B3. The Credit grade is represented by C4, C5 and C6; the ordinary Pass is represented by D7 and D8, while the Failure grade is represented by F9 (WAEC, 2006). It's important to mention that the distinction and credit grades represent quality pass and are the only acceptable grades for admission into Nigerian universities. The minimum entry requirement is credits in five subjects including English language (JAMB, 2008). Economics as a subject is therefore considered appropriate in this project because it is a core subject (compulsory) that every student in secondary school is expected to offer and that it is not seen as a difficult subject people have phobia for.

Based on the discourse above, certain facts can logically be arrived at. First, education centres on the individual and perhaps the greatest indication of the quality of education is the quality of output which is the individual. Academic achievement and success are indications of the quality of the output. Student engagement is a pre-requisite for students' academic achievement and success. In order for students to learn and be successful, they need to be engaged in their school. Engagement is ensured if students appreciate and put forth effort in their school work, engagement is heightened when students follow rules and regularly attend all their classes.

It is therefore crucial for student engagement surveys to be carried out and for information pertaining to academic achievement of students to be obtained so that their academic achievement can be compared against their engagement levels. The determination of students' academic achievement is a comparative endeavour. Data on a range of indicators of both student engagement and students' academic achievement are processed and will thus be used to inform whole school improvement and better products. When this is done, the ultimate goal of education and the National Policy on Education may be achieved. The problem of this study therefore is, to establish the relationship between student engagement and their academic achievement in Economics in senior secondary schools in Anambra State, Nigeria.

Research Questions

The following research questions guided the study.

1) How does students' behavioural engagement determine their cognitive achievement in economics in Anambra State?
2) How does students' cognitive engagement determine their cognitive achievement in economics in Anambra State?
3) How does students' emotional engagement determine their cognitive achievement in economics in Anambra State?

Hypotheses

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

1) There is no significant relationship in the mean scores of students between their behavioural engagement and cognitive achievement in Economics in Anambra State.
2) There is no significant relationship in the mean scores of students between their cognitive engagement and cognitive achievement in Economics in Anambra State.
3) There is no significant relationship in the mean scores of students between their emotional engagement and cognitive achievement in Economics in Anambra State.

2. Method

This study was carried out in Anambra State. It employed a correlation design in which the level of student engagement as compared to their academic achievement in Economics in secondary schools in Anambra State was observed. The population of the study comprised the four thousand, nine hundred and thirty-seven (4,937) students (2,013 male & 2,924 female) of senior secondary schools in the State. Using a purposive and proportionate stratified sampling technique, 200 students which comprised 100 male students from 10 single-boys' schools and another 100 female students from 10 single-girls' schools, were selected. Having determined the number of schools and the schools that have the required respondents, the students for the study were selected using simple random sampling technique.

The 30-itemed Students' Engagement Questionnaire (SEQ), measuring the three engagement types as well as 40-questioned Economics Achievement Test (EAT) were the instruments used for the study. The SEQ which is a psychological sealed Likert- type was adequately faced validated by three experts, likewise the EAT. The SEQ instrument was initially administered to thirty (30) students in a trial testing. Data collected were first used for factor analysis by variance matrix principal component. Six items were dropped for poor loading. The instrument now has thirty items whose data were used to determine the approach. By this analysis, a reliability coefficient of 0.95 was obtained which was adjudged to be of high internal consistency. Also, the reliability of EAT which is a multiple choice (objective) test in four options with one correct option was obtained using test-re-test based on the

Pearson Product Moment Correlation (PPMC). By this approach, a reliability coefficient for EAT was obtained as 0.97 using data obtained in two separate instruments administration on thirty students. All instrument administration for determination of reliabilities was done in Enugu State.

The researchers with the help of 5 trained research assistants distributed and retrieved the 200 copies of the questionnaire for the study. The data collected were analysed using aggregate scores and mean to answer the research questions and the regression analysis to test hypotheses 1 to 3 at 0.05 level of significance.

3. Results

Research Question 1: How does students' behavioural engagement determine their cognitive achievement in economics in Anambra State?

Table 1: Mean Ratings of Students on Behavioural Engagement

S/NO	Item	SA	A	D	SD	X	Interpretation
1	Easily pay attention in class.	127	54	14	5	3.51	Accepted
2	Often get into trouble school.	78	63	45	14	3.02	Accepted
3	Always do my homework promptly.	77	88	28	7	3.18	Accepted
4	Do not get to school earlier than 8.00am	55	60	70	15	2.77	Accepted
5	Do not get along with other students.	53	82	40	25	2.81	Accepted
6	Participate in extra-curricular activities.	91	71	27	11	3.21	Accepted
7	Skip classes during school hours.	68	67	42	23	2.9	Accepted
8	Always present at morning assembly	63	80	36	21	2.92	Accepted
9	Remain in school until school is over	62	95	33	10	3.04	Accepted
10	Study at home even when I do not have a test	46	71	49	34	2.64	Accepted
Grand Mean						**3.00**	Accepted

From results in table 1, all items are accepted as confirming students' behaviour because they have mean values above 2.50, the limiting point. Even the grand mean is 3.00 which is above 2.50, hence, the respondents agree that behavioural engagement determines their cognitive achievement.

Research Question 2: How does students' cognitive engagement determine their cognitive achievement in economics in Anambra State?

Table 2: Mean Ratings of Students on Cognitive Engagement

S/NO	Item	SA	A	D	SD	X	Interpretation
11	Do not think education is important	34	63	56	47	2.4	Not Accepted
12	Learning in school will be useful to me later in life.	60	85	32	23	2.91	Accepted
13	I think about my school work even when I am not in school.	52	90	31	17	2.98	Accepted
14	A good school certificate result is important to me.	103	52	33	12	3.23	Accepted
15	Do not wish to further my education.	30	76	48	46	2.45	Not Accepted
16	Learn a lot from my classes.	46	81	37	36	2.68	Accepted
17	Interested in the work I do in my classes.	91	63	22	24	3.1	Accepted
18	Not important to attend school every school day.	30	70	40	60	2.35	Not Accepted
19	Sometimes feel like staying away from school	23	34	48	95	1.92	Not Accepted
Grand Mean 2.66							Accepted

From the results in table 2, items 12, 13, 14, 16 and 17 were accepted while items 11, 15, 18 and 19 were not accepted. However, the grand mean of 2.66 implies that respondents agree that cognitive engagement determines their cognitive achievement.

Research Question 3: How does students' emotional engagement determine their cognitive achievement in economics in Anambra State?

Table 3: Mean Rating of Students on Emotional Engagement

S/NO	Item	SA	A	D	SD	X	Interpretation
20	It is fun to be in my school	68	77	29	26	2.93	Accepted
21	Not happy to be at my school.	41	63	43	53	2.46	Not Accepted
22	Teachers in my school do not treat students fairly.	46	52	65	37	2.63	Accepted
23	Teachers care about how I'm doing	94	85	14	7	3.33	Accepted
24	Working in school does not excite me.	75	81	36	8	3.11	Accepted
25	I go to my teachers to discuss my personal problems.	63	68	38	31	2.81	Accepted
26	Feel close to people in my school.	72	65	35	28	2.9	Accepted
27	Do not feel safe in my school.	7	79	88	26	2.33	Not Accepted
28	Have many friends at school.	62	128	7	3	3.24	Accepted
29	Enjoy the work I do in class.	63	125	8	4	3.23	Accepted
30	Classes are not boring.	63	126	5	6	3.23	Accepted
Grand Mean				**2.92**			Accepted

Results as shown in table 3 indicate that all items were accepted except items 21 and 27 for having mean values less than 2.50. But the grand mean of 2.92 is above 2.50 and so implies that students emotional engagement determines their cognitive achievement.

H01: There is no significant relationship in the mean scores of students between their behavioural engagement and cognitive achievement in Economics in Anambra State.

Table 4: Regression Summary of Students' Behavioural Engagement and Achievement Relationship

Multiple	= 0.21179
R Square	= 0.04494
Adjusted R Square	= 0.029
Standard Error	= 15.25840

F (1, 118) = 12.917; P < 0.05

Table 5: ANOVA Results on Students' Behavioural Engagement and Achievement Relationship

Variables	*Sum of Square*	*Df*	*Mean Square*	*F ratio*	*Significance*
Regression	679.226	1	679.226	12.91	0.0000
Residual	14434.758	118	232.818		
Total	15113.98	119			

Results in table 4 shows that behavioural achievement relationship has a multiple correlation of 0.211 in economics. However, this variable contributed only 2.95% of the variance in students achievement as shown by the coefficient of determination (R2 = 0. 029). The F-value shown below the table 4 explains the significance as stated by the ANOVA result in table 5, which is adjudged significant. Hence, there is a significant relationship in the mean responses of student between behavioural engagement and achievement in Economics.

H02: There is no significant relationship in the mean scores of students between their cognitive engagement and cognitive achievement in Economics in Anambra State.

Table 6: Regression Summary of Students Cognitive Engagement and Achievement Relationship

Multiple	= 0.0231
R Square	= 0.0005
Adjusted R Square	= 0.0141
Standard Error	= 15.2374

F (1,118) = 22.36; P < 0.05.

Table 7: ANOVA Results on Students' Cognitive Engagement and Achievement Relationship

Variables	*Sum of Square*	*Df*	*Mean Square*	*F ratio*	*Significance*
Regression	8.47729	1	8.47729	32.824	0.0016
Residual	15788.1655	118	232.17891		
Total	15796.64	119			

Results in table 6 reveal a multiple correlation of 0.0231 for cognitive achievement relationship in Economics. This figure contributes only 1.41% to the variance in students achievement as shown by R2 = 0.0141. The F value at the base of table 6 explains the significance which is stated in table 7 as significant. Therefore, there is a significant relationship between cognitive engagement and achievement of students in Economics.

H03: There is no significant relationship in the mean scores of students between their emotional engagement and cognitive achievement in Economics in Anambra State.

Table 8: Regression Summary of Students' Emotional Engagement and Achievement Relationship

Multiple	= 0.17319
R Square	= 0.02999
Adjusted R Square	= 0.01484
Standard Error	= 15.21113

F (1, 118) = 38.072; P < 0.05.

Table 9: ANOVA Result of Students' Emotional Engagement and Achievement Relationship

Variables	*Sum of Square*	*Df*	*Mean Square*	*F ratio*	*Significance*
Regression	457.88920	1	457.88920	21.643	0.0034
Residual	14808.23201	118	231.37863		
Total	15266.12	119			

The results in table 8 have a multiple correlation of 0.17319 for emotional achievement relationship in Economics. This figure makes a variance contribution of 1.48% to the students' achievement as shown by R2 = 0.1484. Again, the F – ratio at the base of table 8 tries to explain the significance of the hypothesis. However, the ANOVA result in table 9 indicates a significance case, hence, there is a significant relationship between students' emotional engagement and achievement in Economics.

4. Summary of Findings

From the analyses of data collected from the field for this study, as presented in this chapter, the major finding that emerged are as follows:

1) Generally the students reported only high and moderate engagement.
2) Most of the students reported high engagement in behavioural and emotional, but moderate engagement in the cognitive type.
3) There is a significant relationship between the three types of engagement (behavioural, cognitive and emotional engagements) and achievement of students in Economics.

5. Discussion of Results

Students' Behavioural Engagement as a Determinant of their Achievement in Economics

From the findings of the study, it was observed that all the items identified in behavioural engagement section in table 1, were accepted by all the students, with mean values above 2.50 and a grand mean value of 3.00. Also, since all the students scored above 50% in the economics achievement test administered to them, it therefore, mean that students behavioural engagement determines their achievement in economics. This is in-line with the findings of Fredriks et al (2004) that there is a significant relationship between behavioural engagement and academic achievement. This

means that the more behaviourally engaged a student is the better he/she achieves at school.

Furthermore, the hypothesis on behavioural engagement and achievement in economics shows that there is a significant relationship in the mean response of students between behavioural engagement and achievement in economics, as shown in the regression summary of table 4 and the ANOVA result in table 5, where 0.0000 significance was obtained.

Students' Cognitive Engagement as a Determinant of their Achievement in Economics

Looking at the findings of the study in table 2, among the 9 items on cognitive engagement, 4 items (items 11, 15, 18 and 19) were rated poor (rejected) by the respondents as not part of the cognitive engagement that promotes/determines their achievement in economics. Meanwhile, the other 5 items were accepted and haven obtained a grand mean of 2.66, from the section and also haven scored above 50% in the economics achievement test, it shows that students cognitive engagement determines their achievement in economics. This although is partially in-line with the idea of NCSE (2006b) but contrary to the fact that he said "cognitive engagement was more consistently correlated with achievement than the other two types of engagement", haven recorded the least mean value among the various types of engagement. This may be as a result of poor items identified because according to Fredrick, et al (2002), evidence of a relationship between cognitive engagement and achievement is much stronger than in behavioural and emotional engagement. Cognitive engagement correlates with reading.

Based on the hypothesis on cognitive engagement and achievement in economics, the result from regression in table 6 and ANOVA summary of table 9 showing 0.0016 significance obtained, means that there is a significant relationship in the mean response of student between cognitive engagement and achievement in economics.

Students' Emotional Engagement as a Determinant of their Achievement in Economics.

From the findings of the study in table 3, 2 items (21 & 27) among the eleven identified items were rejected while the other 9 items were accepted with mean values of above 2.50. Also a grand mean of 2.92 was obtained and haven recorded above 50% score in the economic achievement test by all the student, it shows that students emotional engagement determines their achievement in economics. This is in-line with the view of Fredrick et al (2002) that emotional engagement is related to achievement but has a little link to achievement. To support this ascertain, NCSE (2006b) concludes that they found a link between behavioural and achievement as well as cognitive and achievement but that emotional engagement was more highly correlated with attendance than with achievement.

The result of the hypotheses on emotional engagement and achievement in economics, reveals positive from the regression analysis in table 8 as well as the ANOVA summary in table 9 which has 0.0034 significance meaning that there is a significant relationship in the mean response of students between emotional engagement and achievement in economics.

6. Conclusions

1) Since the three engagement types had mean scores above 2.50, it is therefore concluded that the more engaged a student is, the better he/she achieves in school.
2) There is a high engagement among senior secondary school students in the state. Out of the three engagement types measured, the students reported moderate in cognitive but high in behavioural and emotional engagements. One can therefore conclude that moderate engagement may be sufficient for a good academic achievement.
3) The levels of behavioural and emotional engagement of the students seem to agree with each other more than cognitive engagement.

7. Recommendations

Based on the findings of this study the following recommendations are made:-

1) A campaign that focuses on the importance of school and the consequences of disengagement from school should be carried out regularly by the government agencies and other stakeholders in education. This regular campaign will not only promote students' confidence in their ability to learn and succeed in school but will also help them to see the link between succeeding in school and succeeding in life
2) Small learning communities should be created to foster personalized and continuous relationship between teachers and students. Large schools can be broken down into smaller, connected but somewhat autonomous units to increase the interactions and connections among students and between students and teachers. In this way student engagement will be greatly enhanced.
3) The teacher student ratio should be lowered from its present 1:40 to at most 1:30 to enable teachers to effectively detect and follow up students exhibiting signs of disengagement from school. The fewer the number of students in a teacher's charge, the more effectively the teacher can monitor them. This may mean employment of more teachers and guidance counsellors.

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