EFFECTS OF SOCIO-ECONOMIC STATUS, ACADEMIC ABILITY AND MOTIVATION ON STUDENTS' ACADEMIC PERFORMANCE IN BASIC TECHNOLOGY

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ABSTRACT
The issue of sustainable educational development in the case of Nigeria borders much on many factors which to a proportionate extent influence or mar students learning in diverse subject discipline. This study therefore examined the effects of social – economic status, academic ability and motivation on students' academic performance in basic technology along with the challenges for stakeholders and classroom instruction, all for sustainable education and national development. A sample of 96 junior secondary school three students drawn through simple random sampling technique from secondary schools purposively selected in Ona Ara Local Government Area of Oyo State of Nigeria was used for the study. Seven hypotheses were generated and tested in the study. The instruments used for data collection included socio – Economic Background Data Inventory (SEBDI), Students' Motivation Scale for the Learning of Basic Technology (SMSLBT and Students' Academic Performance Test in Basic Technology (SAPTBT.) The data collected were analyzed using Analysis of Variance (ANOVA) and Multiple Classifications Analysis (MCA). The result indicated that academic ability has a significant main effect on students' academic performance while socio – economic status has no significant contributions to students' academic performance. The study further discovered that the students with high academic ability as well as those from high socio – economic status homes have greater potency to do well in basic technology than their counterparts from low socio –economic status families and those with low academic ability. Based on the findings, the concerned stakeholders are called upon to give prompt attention to the factors which have much link with students' classroom instruction and performance since the attainment of high academic performance of students rests heavily on them.
Keywords: Academic Ability, Motivation Performance, Socio – Economic Status.

BACKGROUND TO THE PROBLEM

One of the philosophical assumptions underlying the junior secondary school level of education in Nigeria is to enable students acquire knowledge and pre-vocational skills relevant to eventual self-reliant and self-supporting education in their subsequent educational pursuit. Of great concern is basic technology which is among the integrated vocational subjects within the curriculum objectives of junior secondary school in Nigeria. Basic Technology curriculum objectives which foster pre-vocational orientation in technology, basic technological literary and creativity serves as a foundation on which the march towards the economic survival of an individual and nation can be built.

However, the attainment of the objects identified by the curriculum of any subject discipline depends largely on the interaction between the leaner himself and other factors like personnel, facilities, types of school, school location, and stability in academic calendar and methods of teaching. The shortfalls of such factors obviously inhibit the actual students' academic performances in educational institutions. Also, home variables like home language, family setup, family vocation, family social class, parental attitude towards children's education and learners' interest in schooling have for sometime occupied the mind of researchers in the field of education who work to enhance learning and reduce failure rate in learning.

Douglas (2000) for example, commented on the role of social status in child's education when he writes that:

A high social status gives a child self-esteem,

> *and high self-esteem seems to a large measure to be due to parental affection, encouragement, physical affection, consistency and democratic behaviour that is, to things that make a child feel a valued, significant and responsible member of the family (p. 23)*

Thus, a child's family characteristics reflect in his attitude to studies both within the school and beyond. Socio-economic status of parents has also been found to have bearing on the child's learning. Children from deprived homes do not seem to have good study environment and texts for class exercises. Home environment of a child is a possible source of explanation for a child's academic achievement in schools (Osokoya, 2000).

Research studies have also observed the relationship between academic ability and scholastic performance. In the findings of Aremu (2001), it has been discovered that pupils of varying ability levels perform differently depending on the types of method and material used for instruction. From a review of some studies by Falaye (2000), it was observed that knowledge acquisition, information control and recall when needed are integratedly related to learners' ability. This suggested a close relationship between ability and performance (Oladiti, 2001). Therefore, when peers are involved in competitive academic activities, it is assumed that perceived relative abilities may influence their competitive attitude and expected relative performances. Okim (2003) cited Murphy and Hallinger (1989) that the curriculum of lower ability students emphasizes lower level and more functional skills than the curriculum for their high ability peers. Shokan (1991) observes that some people are endowed with better cognitive abilities for language learning than others, and that such variation in language aptitude has considerable significance for language process.

Another factor which has implications on students' learning is motivation. It is the inclination an individual has towards learning. High motivation come from expectation of success, the value attached to success and the belief that the outcome will match the effort (Udosen, 2001). Added to this is that instrumental motivation so developed can lead to improved reading and learning. Parental motivation received by students (Ezewu, 1992) with regards to their school work or assignments often goes a long way to influence their performance.

Motivation is thus a vital factor in any teaching and learning situation. It is the choice of activity one makes plus the persistence and intensity with which the activity is pursued (Awotua-Efebo, 1999). In respect of teaching and learning, when the learning materials are relevant to the needs of learners, they are more likely to have motivation to learn. Researchers in recent times have discovered that instrumental motivation enhances achievement and should be encouraged (Ehrman and Oxford, 1995).

A close look at the factors identified shows that virtually all of them are associated with school learning. Meanwhile, it has been observed that despite the scope and depth of the available studies in their exploration of how socio-economic factors, students' ability, motivation and other socio-psychological variables affect students' learning outcomes in various subjects in the school curriculum at all levels, basic technology as an aspect of secondary school curriculum has been largely neglected. One of the obvious reasons perhaps may be due to the attitude of the society towards the implementation of technical education in Nigeria.

On the background therefore, socio-economic status, academic ability and motivation associated with teaching and learning are taken together in this study as correlates of junior secondary school students' academic performance in basic technology. The outcome of which would help in improving students' learning when the variables are better given due consideration in both the theory and practice of education.

STATEMENT OF THE PROBLEM

Research efforts at various times have shown that many factors and constraints could determine the rate at which learners climb the educational scaffolding in their life time. Empirical evidence on the effect of such variables in respect of students learning of the content of basic technology curriculum would help in improving their academic performance in the subject. This study therefore examined the relative effects of

socio-economic status, academic ability and motivation on students' academic performance in basic technology upon which the challenges for stakeholders and classroom instruction were discussed.

RESEARCH HYPOTHESES

H_{01}: There is no significant effect of socio-economic status on students' academic performance in basic technology.

H_{02}: There is no significant effect of academic ability on students' academic performance in basic technology.

H_{03}: There is no significant effect of motivation on students' academic performance in basic technology.

H_{04}: There is no significant interaction effect between socio-economic status and academic ability on students' academic performance in basic technology.

H_{05}: There is no significant interaction effect between socio-economic status and motivation on students' academic performance in basic technology.

H_{06}: There is no significant interaction effect between academic ability and motivation on students' academic performance in basic technology.

H_{07}: There is no significant interaction effect between socio-economic status, academic ability and motivation on students' academic performance in basic technology.

METHODOLOGY

Research Design

The study is a descriptive research survey design of the ex-post facto type in which the variables of the study were not subjected to any manipulation as they have already occurred in the field before the research started.

Target Population

The population of the study consists of three hundred (300) junior secondary school students in the schools where basic technology teachers are available to teach junior secondary school (JSS) one to JSS three students. The other junior secondary schools where basic technology teachers and workshops were not available did not consider as part of the population for the study.

Sample and Sampling Procedure

The sample consisted of 96 (66 boys and 30 girls) junior secondary school three (J.S.S III) students in four public secondary schools selected through purposeful random sampling technique in the Local Government. Twenty-Four students were randomly selected in each of the four schools for equal number of selection through simple random sampling technique. The simple random sampling technique involves the handpicking of twenty-four of the available junior secondary school students in each of the schools selected for the study. Junior secondary school three students were selected for this study because they have learnt basic technology for above two years and were seen to be in a better position to respond to the instruments items.

INSTRUMENTATION

The research instruments used for this study are:

1 Socio-Economic Background Data Inventory (SEBDI)
2 Students' Motivation Scale for the Learning of Basic Technology (SMSLBT).
3 Students Academic Performance Test in Basic Technology (SAPTBT)

Socio Economic Background Data Inventory (SEBDI) consisted of 15-item statements constructed by the researcher. The items in SEBDI were in varieties of Yes, No, Often, Seldom and Never to elicit various but relevant information to the study from the students. Students Motivation Scale for the Learning of Basic Technology (SMSLBT) comprised 10-item structured statements by the researcher to find out the motivation of students for basic technology was in form of a modified 4-point Likert-scale. The four options carried simple weights of 4,3,2,1 for positive items and 1,2,3,4 scoring order for negative items. Students

Academic Performance Test in Basic Technology (SAPTBT) comprised 50-objective item and two easy questions designed by the researcher using the current junior secondary school basic technology syllabus recommended texts. The total mark was 100 and the determination of the academic ability level was based on the record of the previous performances of the students sampled in their respective schools.

VALIDITY AND RELIABILITY OF THE INSTRUMENTS

The instruments were given to experts in technical education for face and content validity. Based on their criticisms and suggestions, some corrections were effected. SEBDI and SMSLBT were tested for reliability using Cronbach Alpha Co-efficient, and a value of 0.76 and0.71 were obtained respectively. The Cronbach alpha values were considered high enough and accept as being reliable. The reliability of SAPBT was done using Pearson Products Moment Coefficient of Correlation and a value of 0.74 was obtained.

METHOD OF DATA COLLECTION

The four secondary schools involved in this study were visited on separate basis, and permission was sought from their principals to carry out the study. Some basic technology teachers assisted in the administration of the instruments. The administration and timing of the achievement text in Basic Technology was done in accordance with junior secondary school examination regulations in which the students were subjected to strict supervision within a period of two hours.

METHOD OF DATA ANALYSIS

The analysis of the data for this study involved the use of Analysis of Variance (ANOVA), Multiple Classification Analysis, and T-test statistics. Based on their relevant usage, the instruments were analyzed in order to proffer answers to the research hypotheses.

Results

Table 1: Summary of Analysis of Variance (ANOVA) of Students' Academic Performance in Basic Technology

Source of Variation	Sum of Squares	Df	Mean Square	F	Sig of F
Main Effects	1225.892	4	3062.973	85.086	0.000
Social Economics Status	2.260	1	2.260	.063	.803
Academic Ability	12249.446	2	6124.723	170.137	.000**
Motivation	.186	1	.186	.005	.943
2-way interaction	97.249	5	19.448	.540	.745
Socio-Economic Status x Acad. Ability	29.214	2	14.607	.406	.668
Socio-Econ. Status x Motivation	15.565	1	15.565	.423	.513
Academic Ability x Motivation	37.365	2	18.683	.519	.597
3-way interactions	50.811	2	25.405	.706	.497
Socio-Economic Status x Acad. Ability x Motivation	50.811	2	25.405		.497
Explained	12399.924	11	1127.267		
Residual	3023.892	84	35.999		
Total	15423.833	95	162.356		

Table 1 shows the data for the analysis of the effects of socio-economic status, academic ability and motivation on students' academic performance in Basic Technology. The table shows main effects of the three independent variables, two-way interaction effects and three-way interaction effects on students' academic performance in Basic Technology. From the table, the results of the ANOVA indicate that there is no significant main effect of socio-economic status on students academic performance in Basic

Technology (F= .803>0.05), therefore hypothesis 1 is not rejected. But there is a significant main effect of academic ability on students' academic performance in the same subject (F = 0.000 < 0.05) hence hypothesis 2 is hereby rejected. The table also shows that there is no significant main effect of motivation on students academic performance (F -943 > 0.05), in this case hypothesis 3 is not rejected.

In a similar case, there is no significant interaction effect between socio-economic status and academic ability, socio-economic status and motivation, academic ability and motivation on students' academic performance in Basic Technology, therefore, hypotheses 4, 5 and 6 are not rejected respectively. (2- Way interactions F = . 668 > 0.05; F = .513 > .05; F = .597 > 0.05 in each case). The table equally reveals no significant interaction effects of socio-economic status, academic ability and motivation on students academic performance in Basic Technology, therefore, hypothesis 7 is not rejected (3-way interaction – F = .497 >0.05).

Table 2a: Multiple Classification Analysis of Academic Performance Scores of Respondents According to Socio-Economics Status, Academic Ability and Motivation
Grand Mean = 34.71

Variable and Category	N	Unadjusted Deviation	Eta	Adjusted Deviation	Beta
Social Economics Status					
(1) Low	39	-3.75		-19	1
(2) High	57	2.55		.13	
Academic Ability (AA)					
(1) Low	26	-15.36	.89	-15.32	
(2) Middle/Average	27	-3.63		-3.61	.89
(3) High	43	11.57		11.53	
Motivation (M)		-21			
(1) Low	18		.01	.09	.00
(2) High	78			-02	
Multiple R Squared		.05			.784
Multiple R					-891

The results in table 2a indicate a grand mean of 34.71. The multiple R square (R^2) which shows the percentage contribution of Socio-Economic Status (SES), Academic Ability (AA) and Motivation (M) to students' academic performance is 79.4% (0.794 x 100). The adjusted mean scores of academic performance of the students in Basic Technology as influenced by "SES", "AA" and "M" inferred from table 2a are as stated in table 2b.

Table 2b: The Adjusted Mean Score of Basic Technology Students in Basic Technology

Variable Category	Adjusted Mean Score	Ranking
Low Socio-Economics Status	34.52	5th
High Socio-Economics Status	34.83	2nd
Low Academic Ability	19.39	7th
Middle/ Average Academic Ability	31.10	6th
High Academic Ability	46.24	Ist
Low Motivation	34.80	3rd
High Motivation	34.69	4th

As presented in table 2b, the students with high academic ability as well as those from high socio-economic status homes have greater potency to do well in basic technology than those from low socio-economic status families along with low academic ability students. However, in this study, the students with low motivation towards basic technology have a higher adjusted mean achievement score than those with high motivation towards the subject. Some other factors not considered in this study might be responsible for this. The ranking in table 2b gives a clear picture of the variations in the mean achievement scores.

SUMMARY OF FINDINGS

- Academic ability is a strong predictor for students' academic performance in educational institutions.
- Students from low socio-economic background could also do well in schools if given proper care and attention.
- There could be other factors apart from socio-economic status, motivation and academic ability that could affect students learning in schools.
- The factors considered in this study are worthy of note in teachers teaching and students learning.

RECOMMENDATIONS/SUGGESTIONS FOR IMPROVEMENT

The results of the study proved an empirical basis on whether socio-economic status, academic ability and motivation would influence academic performance of students. The revelations arising in this study are quite significant to the parents, classroom teachers, students, the policy makers, and other personnel in some other professions. The ultimate expectation of the parents is to see that their wards excel in academics. Parents, teachers and other support staff concerned with the education and well being of school children generally should always motivate learners by encouraging them for good performance in their studies and reward them as at when due.. Any thing outside this is not only frustrating to the students and parents as well as teaching personnel. Its effects are equally grave on the society in terms of poor academic performance in schools and poor curriculum yield at large if due attention is not given to motivation of the children.

Parents should be more sensitive to their parental roles for both cognitive and psychological developments of their wards. The school needs of these children should at least be met moderately. We should realize that these children also have feelings, and want to be appreciated.

Similarly, a more pragmatic and dynamic approach should be adopted by basic technology teachers when imparting knowledge. Teachers should continuously employ various strategies and techniques along with relevant materials to bring out the desired learning of the subject. The on-going aspect of teaching (instruction) requires the teacher to modify his teaching plans when necessary, monitor learners' behaviour and encourage adequate interaction of the learners' with the learning activities set up in the instruction al context. Up-to-date feedback and reward given to the students would further motivate them to learn.

Also, technical education aspect of secondary school curriculum in Nigeria which is one of the instruments of progress must not be left unattended to very seriously by appropriate government functionaries in term of provision of fund, tools and equipment, effective monitoring and supervision of the curriculum implementation, prompt attention to issues that border on technical education options in secondary schools and honest pursuance of educational policy in general.

Finally, it is believed that the attainment of high students' academic performance rests heavily on all the major stakeholders. Therefore, all efforts must be geared immediately towards attending to the factors that majorly link with students' studies added to the adequate attention of the concerned stakeholders to their responsibilities.

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