PROBLEMS OF STUDENTS' AVERSION TO LEARNING BASIC TECHNOLOGY: A STUDY OF JUNIOR SECONDARY SCHOOLS IN MARYLAND METROPOLIS, LAGOS STATE

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Abstract
The study identified problems of students' aversion to learning Basic technology in Junior secondary schools in Maryland Metropolis, Lagos State. Two research questions and two hypotheses were used for the study. A structured questionnaire was used for data collection from one hundred and fifty eight respondents. The data were analyzed using mean and standard deviation. T-test statistics was used to test hypotheses at 0.05 level of significance. Cronbach Alpha formula was applied to determine the reliability coefficient of the instrument and it was found to be 0.86. The instrument was subjected to face and content validation by three experts from the Department of Science and Technology Education of University of Lagos. The study revealed among others lack of teaching facilities, students' participation in practical work and teaching methods adopted by teachers were the causes of students' aversion to learning Basic technology. It is recommended that teachers and students should participate in practical exercise and application of ICT for teaching Basic technology is essential to arouse students' interest in the subject.

Keywords: Aversion, Basic Technology, Facility, Junior Secondary School, Learning, Teaching

Introduction
Basic technology is an appropriate subject for all children in junior secondary school because of its importance to national development. Alhassan (2000) identified two broad aims of Basic technology at the secondary school level. This includes given children awareness on technology and as a tool for developing practical capability of students to engage in technological activities. National Policy on Education (Federal Republic of Nigeria, 2004) stipulates that efforts should be made to inculcate attitude that would make the students appreciate the role of technology in the society. Students often find it difficult to learn Basic technology despite government's effort towards revamping vocational subjects at the Junior Secondary School level by providing equipment and employing Basic technology teachers. The problem of students' aversion to learning Basic technology often threatens the development of prospective engineers and technologists and other technology related profession. Students' aversion to learning Basic technology can be explained as lack of students' interest in Basic technology. Students' aversion to learning Basic technology, according to Eze-Okeke (1998), could be due to the fact that, technology and science involve a lot of Mathematics which students often find difficult. Similarly, a lot of practical class and workshop practical activity and the curriculum content is loaded with so many trades to cover. Akinmoyewa (2000) revealed that understanding of the nature, interest and the need of the students, adequate knowledge of the subject matter, the use of relevant and effective instructional materials and the ability to communicate, control and

manage the class are important in making the student to learn effectively. Students' aversion can be controlled by ensuring that necessary measures are taken so that teaching and learning of Basic technology at junior secondary school would be interesting.

Students' aversion to learning Basic technology is seen directly in their attitude and interest towards the subject by not performing well and many of them fail to choose technical subjects or trades as they proceed to senior secondary school. Onwuchekwa (2001) pointed out that the negative attitude and interest of students towards technology subject in Secondary Schools is a serious concern to educators and parents. According to Onwuchekwa, more students opted for art or commercial subjects while few settled for technology subjects. The rate of decline in students' enrolment in technology related subjects in West African Examination Council (WAEC) and National Examination Council (NECO) examination is so alarming. This might be as a result of students' aversion to learning Basic technology at Junior Secondary School level. When students are not well taught, they loose interest and hence, leads to strong aversion for the subject. At entry level into Secondary Schools, many students have decided not to offer technology related subject. The negative attitude and interest of students towards the subject have significantly affected the development of science and technology in the country. The few students who show interest in Basic technology do not perform well in the subject.

Agogo (2002) revealed the poor performance of students in science and science-based subjects of which Basic technology is one. Junior Secondary School examinations are pointers to the fact that students develop negative attitude to the subject. Agogo stressed further that students encounter difficulties in learning Basic technology because of cultural differences. Onwuchekwa (2001) stressed that the reason for aversion could be problems generated by the student themselves and the poor attitude of government and society towards technology. The federal government and state government have tried in providing laboratories, workshops, audio-visual aids among others for teaching Basic technology. Though, these laboratories and workshops may not be adequate. Government has also tried to boost interest in Basic technology by formulating certain policies. For instance, the 60-40 admission policy into higher institutions in favour of the science and technology oriented students. (Eze-Okeke, 1998). In spite of all these effort by the government, there are large number of students that still exhibit aversion to learning Basic technology.

Statement of the Problem

Basic technology is that aspect of education that exposes learners to technology trades and basic scientific knowledge. They learners are expected to acquire practical skills towards self reliance. Basic technology is a subject offered at Junior secondary schools and it aims at developing students technological skills that can transform Nigeria into industrialized nation. A nation can't achieve any meaningful technological development except she is able to harness the natural resources within her domain. The problems of aversion towards learning Basic technology place limitation on the level students can attain academically. In order words, students' aversion to learning Basic technology results to lost of concentration by students and failure in promotional or external examination or continuous assessment. The effects of this, is that it can affect technological development in Nigeria.

Purpose of the Study

The study examined the problems of students' aversion to learning Basic technology in Maryland metropolis of Lagos State. Basically, the study sought to:

(i) Find out problems of students' aversion to learning Basic technology in Maryland metropolis of Lagos State.
(ii) Identify strategies for enhancing students' interest in learning Basic technology in Maryland metropolis of Lagos State.

Research Questions

The following research questions posed guide the study

(i) What are the problems of students' aversion to learning Basic technology in Maryland metropolis of Lagos State?
(ii) What are the strategies for enhancing students' interest in learning Basic technology in Maryland metropolis of Lagos State?

Hypotheses

The following hypotheses were tested for the study:

Ho_1: There is no significant difference between mean rating of male and female students on the problems of students' aversion to learning Basic technology.
Ho_2: There is no significant difference between mean rating of male and female students on the strategies for enhancing students' interest in learning Basic technology.

Research Methodology

Survey research design was used to carry out this study. Survey research design deals with the gathering of data and describing it in a systematic manner, the characteristic, features and facts about a given population (Nworgu, 1991). The population for this study comprised of year three Basic technology students in Junior secondary schools in Maryland Metropolis, Lagos State. These students have been exposed to Basic technology as a subject right from year one in the Junior secondary school.

There were eight junior secondary schools in Maryland Metropolis offering Basic technology and five of them were used for the study. The five Junior secondary schools used include Mende Junior High School, Maryland, Lago; Immaculate Heart Comprehensive Junior High School, Maryland, Lagos; Command Day Secondary School, Maryland, Lagos; Redeemer's International Secondary School Maryland, Lagos and Maryland Comprehensive Secondary School, Maryland Lagos.

Simple random sampling technique was used to select 162 students for the study. The school differ from each other in terms of population and for fair judgment in terms representation based on population, twenty per cent (20%) of year three students in each school was sampled from 810 students. Each student was given equal chance of being included in the sample. The use of slips of paper with identification mark was adopted. Students who picked the slips of paper with the identification mark were included in the sample. A total of one hundred and sixty two students were selected from the five Junior secondary schools. The method (slip of paper with identification mark) was applied for selection of schools for the study. Structured questionnaire was used to elicit information from the respondents. Structured questionnaire is the type of questionnaire that restricts the respondent to the response options provided for them. The questionnaire is in two sections; section A focused on the problems of students' aversion to learning Basic technology while section B solicited for information from respondents on the strategies for effective learning of Basic technology to enhance students' interest. The instrument was subjected to face and content validatation by three technology education

experts of Department of Technology Education, University of Lagos, Akoka, Lagos. The reliability coefficient of the instrument was determined using Cronbach Alpha formula. The reliability coefficient of the instrument was found to be 0.86. The researchers and a research assistant visited the schools used for the study and administered the questionnaire to the students of Basic Technology in JSS3. The questionnaire was retrieved immediately after completion by the respondents. Out of one hundred and sixty two (162) questionnaire given out, one hundred and fifty eight (158) were retrieved i.e., 97.53% return rate.

Mean and standard deviation were used to analyze research questions while t-test statistics was used to test the null hypotheses formulated. Four points rating scale was used which are Strongly Agree (SA) 4points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (S.D) 1 point. Items having 2.50 and above were accepted while those items having below 2.50 were rejected.

Results

Research Question 1: What are the problems of students' aversion to learning Basic technology in Maryland metropolis, Lagos State?

Table 1: Mean rating and standard deviation of respondents on problems of students' aversion to learning Basic technology in Maryland metropolis, Lagos state

N = 158

S/N	Item statement	$\bar{X}$	SD	Decision
1.	Students developed apathy towards Basic technology because of lack of teaching facilities in the workshop.	2.14	1.02	Reject
2.	Students lack interest in Basic technology due to lack of practical work.	2.69	1.07	Accept
3.	Students hate Basic technology because teachers do not use instructional materials when teaching.	2.53	1.13	Accept
4.	Students don't like Basic technology because it seems not relevant to their immediate environment.	2.53	1.13	Accept
5.	Students do not have interest in Basic Technology because of the teaching method adopted by teachers.	2.06	0.97	Reject
6.	Students do not choose career in technology because Basic technology courses are task demanding.	2.49	1.68	Reject
7.	Students lack interest in Basic technology because it is only the teachers that perform experiment in the workshop due to limited materials to work with.	2.62	1.71	Accept

Table 1 shows that respondents agreed with Items 2, 3, 4 and 7 based on the decision that their mean ratings were greater than the cut off point of 2.50 and disagreed with item 1,5 and 6. This means lack of teaching facilities in the workshop, teaching methods adopted by teachers and technology courses are task demanding didn't contribute to students' aversion to learning of Basic technology. The standard deviation revealed that there is closeness in the opinion of the respondents.

Research Question 2

What are the strategies for enhancing students' interest in learning Basic technology in Maryland metropolis, Lagos State?

Table 2: Mean rating and standard deviation of respondents on strategies for enhancing students' interest in learning Basic technology in Maryland metropolis, Lagos State

N = 158

S/N	Item statement	$\bar{X}$	SD	Decision
8.	Teacher ensured that students participate in practical work in the workshop.	3.07	0.89	Accept
9.	Encouraging to learn Basic technology by making the content taught relevant to their immediate environment.	3.06	0.81	Accept
10.	Involving students in excursion to industries to see what they have learnt in the class.	2.63	1.04	Accept
11.	Teachers of Basic technology used instructional material for teaching.	3.09	0.93	Accept
12.	Students are encouraged to express their acquired technical skill in the technology workshop.	2.90	1.04	Accept
13.	Teaching of Basic technology can be enhanced with the application of ICT for teaching to arouse students' interest in the subject.	3.28	0.80	Accept
14.	Making Basic technology a core subject required for promotion of students to the next class can develop positive attitude towards the subject.	2.73	1.08	Accept

Table 2 reveals that respondents agreed with all the items. Therefore, students' interest will be enhanced if the above strategies are adopted by Basic technology teachers when teaching Basic technology. The standard deviation disclosed that there is closeness in the opinion of the respondents.

Hypotheses

H_{01}: There is no significant difference between the mean rating of male and female students on the problem of students' aversion to learning Basic technology.

Table 3: Summary of t-test of respondents on the problems of students' aversion to learning Basic technology

S/N	Item statement	$\bar{X}_M$	SD_M	$\bar{X}_F$	SD_F	t_{cal}	t-value	Remark

1	Students developed apathy towards Basic technology because of lack of teaching facilities in the workshop.	2.82	0.97	2.69	1.05	0.62	1.64	Not Significant
2	Students lack interest in Basic technology due to lack of practical work.	2.74	1.09	2.66	1.06	0.39		Significant
3	Students hate Basic technology because teachers do not use instructional materials when teaching.	2.33	0.92	2.39	1.14	0.27		Not significant
4	Students don't like Basic technology because it seems not relevant to their immediate environment.	2.49	1.16	2.59	1.11	0.63		Not Significant
5	Students do not have interest in Basic technology because of the teaching methods adopted by teachers.	1.90	0.82	2.16	1.05	0.01		Not significant
6	Students do not choose career in technology because Basic technology courses are task demanding.	2.49	1.18	2.49	1.16	0.82		Not Significant
7	Students lack interest in Basic technology because it is only the teachers that perform experiment in the workshop due to limited materials to work with.	2.49	1.02	2.70	1.10	0.55		Not Significant

Key:
$\bar{X}_M$ = Mean for the males
SD_M = Standard deviation for the male
$\bar{X}_F$ = Mean for the female
SDF = Standard deviation for the female
t_{cal} = 1.64, level of significant = $p<0.05$, df = 156

The data in table 3 shows that the t-calculated for all the items were less than the t-table value ($p<0.05$) which means there is no significant difference. Therefore, the null hypothesis was accepted.

Table 4: Summary of t-test analysis of respondents on strategies for enhancing students' interest in learning Basic technology

S/N	Item statement	$\bar{X}_M$	SD_M	$\bar{X}_F$	SD_F	t_{cal}	t-value	Remark
8	Teachers ensured that students participate in practical work in the workshop.	3.14	0.93	3.02	0.84	0.76	1.64	Not Significant
9	Encouraging students to learn Basic technology by making the	3.23	0.87	2.95	0.76	1.69		Not Significant

	content taught relevant to their immediate environment.						
10	Involving students in excursion to industries to see what they have learnt in the class to enhance their interest in Basic technology.	2.41	1.04	2.77	1.02	-1.70	Not Significant
11	Teachers of Basic technology used instructional material for teaching.	3.21	0.86	3.02	0.97	0.98	Not Significant
12	Students are encouraged to express their acquired technical skill in the technology workshop.	2.92	1.17	2.89	0.96	0.17	Not Significant
13	Teaching of Basic Technology can be enhanced with the application of ICT for teaching to arouse students' interest in the subject.	3.38	0.74	3.21	0.83	1.04	Not Significant
14	Making Basic technology a core subject required for promotion of students to the next class can develop positive attitude towards the subject.	2.74	1.04	2.72	1.11	0.10	Not Significant

Key:
$\bar{X}_M$ = Mean for the males
SD_M = Standard deviation for the male
$\bar{X}_F$ = Mean for the female
SDF = Standard deviation for the female
t_{cal} = 1.64, level of significant = $p<0.05$, df = 156

In table 4, the result reveals that the t-calculated for item number 8,10,11,12,13 and 14 were less than t-table value ($p<0.05$) which disclosed that there is no significant difference. The null hypothesis was accepted while t-calculated for item number 9 was more than the t-table value ($p<0.05$) which means that there is significant difference. The null hypothesis was rejected. This proves that there is significant difference between the mean rating of male and female students with reference to encouraging students to learn Basic technology by making the content taught relevant to their immediate environment.

Discussion

The study revealed that lack of teaching facilities and qualified teachers is one of the causes of students' aversion to learning Basic technology. Alhassan (2000) observed that aversion to learning is often revealed in poor students academic performance in schools which some times is as a result of lack of adequate equipment, qualified teachers to teach the subject, maintenance of the equipment and facilities used for workshop practice and the bureaucrats in education. Ukpongson (2000) postulated that the problem of qualified teachers appear to be so grave perhaps hinging on the fact that no educational system can rise above the caliber of its teacher or educational policy, no matter how well planned, educational system can't succeed without the supply of the right quality and quantity of teachers. The acquisition of adequate tools and equipment and the provision of adequate workshop space in the absence of adequate supply of qualified teachers amount to failure and often discourage the students to learn what they are expected to know. In a situation where an integrated science teacher is teaching Basic

technology without the training as a technical teacher will lead to problems in making sure students do not acquire the right skills needed for the right job to perform a particular task in Basic techology (Onwuchekwa, 2001).

The study discovered that making the content relevant to the immediate environment of the student will enhance their interest in Basic technology. Okorie (2001) disclosed that students should be exposed to occupational opportunities available to them which include machining, radio and television services, automobile, body repair work, refrigeration and air conditioning, Bakery, carpentry, cabinet making, welding, painting etc. It was revealed in the study that teachers should ensure that students participate in the practical work in the workshop. Onwuchekwa (2001) emphasized that Basic technology is a practical oriented subject, therefore, it needs the participation of both the teacher and students in the practical. Students' active participation in practical work will enhance their development of positive attitude towards the subject.

Conclusion

The level of students' aversion to learning Basic technology cannot be left unchecked so all hands must be on desk to ensure that students' interest is maximally enhanced in learning Basic technology. Students find it hard to perform well as a result of lack of teaching equipment and teaching methods adopted by Basic technology teachers. Application of ICT for teaching and learning Basic technology is very essential to enhance students understanding of the subject and also to arouse their interest which many schools are lacking. Students should be encouraged to develop interest in Basic technology since no country will develop technologically when technical knowledge and skills are lacking. Therefore, Basic technology teachers should strive harder to make sure those things causing students' aversion to learning Basic technology are minimized or solved.

Recommendations

The following recommendations are made:

(i) Teachers of Basic technology should ensure that instructional materials are often used to enhancing understanding of the subject and also to arouse students' interest in Basic technology.

(ii) Students should be allowed to carry out practical exercise at least once in a week so that their skills can be developed which can also influence their attitude towards the subject.

(iii) Adequate fund should be provided for procurement of materials and equipment to enable students participate actively in workshop activities.

(iv) Teachers of Basic technology should be exposed to various teaching strategies by organizing workshops for them.

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