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The impact of gender on student's interest and performance in basic technology in selected junior secondary schools in Ogun State

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Abstract
This study tries to reveals the impact of gender on students' interest and performance in basic technology. The study was carried out in five randomly selected junior secondary schools in Ikenne Local Government Area of Ogun State. One hundred students offering basic technology (twenty from each secondary school) were sampled. The questionnaire which has twenty items were distributed to the students and analyzed using Statistical Package of Social Sciences (SPSS). The reliability of the research instruments were determined by using the Crombach alpha while its validity was assessed by expects in the field of technical and vocational education and were found to be adequate for use. The study discovered that male students indicated more interest in basic technology than female students; and also performed better in Basic Technology. It was also discovered that in some cases; poor performance of some female students is as a result of discouragement from their parents; other factors are availability of instructional media, teachers' personality, Instructional methodology, depth of knowledge in the subject, and commitment.

Keywords: curriculum, interest, performance, prevocational, vocational guidance

1. Introduction

Basic Technology is one of the pre-vocational subject providing students with a process of orientation in production and consumption through experiences in planning, producing, testing, servicing and evaluating types of consumer and industrial goods. The subject is offered at the junior secondary school level. It is also an integrated subject comprising of woodwork, metalwork, building technology, automobile mechanics, electrical, electronics and technical drawing at their basic level. The programme was first introduced into the Nigeria education system, 6-3-3-4 in 1982 then as Basic Technology as a result of the newly defined National Policy on Education that came into being after the National Curriculum Conference of September, 1969. A.L. Opoola and E.F. Adeniyi (2013) [6]. Uwameiye & Onyewadume, (1999); Ogbazi, (1989): Olaniyan, D.A and Ojo, L. B., (2008) revealed that Nigeria is not left out in such quest for technological Advancement. Both at the federal, state and even to local government levels, efforts have been intensified to see that its citizens are removed from the pit of poverty poor health, inadequate water supply limited Agricultural production, insecurity and Housing problems, using Education as the primary tool.

The National policy on Education was revised severally with an intension of giving Nigerians a functional education. Nonetheless, the Nigerian educational system will be hopeless if it cannot impart its citizens with skill knowledge, technique and potentials that will lead to self-reliance, industry and entrepreneurship. For our education to be that type of functional education emphasis must be given to vocational and technical education both at primary, secondary and tertiary level.

Despite all efforts at various levels of governance a dangerous trend especially in developing countries like Nigeria, which is rooted in traditional and conventional norms of gender segregation and disparity has been uncovered. This trend has to do with career preference which tends to consider one gender better than the other especially in the area of technology even at foundational level. As a result, the impact of gender in students' interest and performance in especially in subjects such as basic technology demand a serious attention because of the differential performances of sexes in technology education have now become an issue of interest.

Other problems that may affect a large number of basic technology students' interest and performance are: Societal misconception of gender role and its impact on technology; lack of practical; absence of laboratory etc. This event may leads to discouragement for a girl studying technical education especially basic technology, leading to loss of interest and poor performance. The concern of this research work is to discover how gender affects students' interest and performance in basic technology.

This research is to investigate the extent to which gender impacts students' interest and performance in basic technology in some selected junior secondary schools in Ikenne Local Government Area of Ogun State. The specific objectives are to find out: (1) the extent to which gender impacts the interest of student in Basic Technology; and (2) the extent to which gender impacts students' performance in Basic Technology.

Thus, the following questions will be answered in this work:

1. Is there any significant difference in the performance of male and female students in Basic Technology?
2. Is there any significant difference in the interest of male and female students in Basic Technology?

2. Literature review

2.1 Secondary School Education

Secondary education refers to the education given to learners after primary education. According to the Nigerian Policy on Education (2004), the broad goal of secondary education is to prepare the individual for: Useful living within the society and Higher education.

In order to achieve these goals, secondary education was given a six-years duration; a period that has been broken into two stages viz: the junior secondary school stage and the senior secondary school stage. Both stages have an equal duration of three years. The junior secondary school is both pre-vocational and academic while the senior secondary school is comprehensive with a core curriculum designed to broaden the learners' knowledge and outlook. Previously, the junior secondary school functions as a level in the 6-3-3-4 system of education. But with the launching of universal basic education in 2002 by the Federal Government, the junior secondary school is now merged with the primary education level to form universal basic education a nine years program that has been broken into six years lower basic and three years upper basic.

2.2 Concept and usage of Gender

The word gender comes from the Middle English gender, a loanword from Norman-conquest-era Old French. This, in turn, came from Latin genus. Both words mean 'kind', 'type', or 'sort', which is also the source of kin, kind, king, and many other English words. It appears in Modern French in the word genre (type, kind, also genre sexual) and is related to the Greek root gen- (to produce), appearing in gene, genesis, and oxygen. As a verb, it means breed in the King James Bible: "Thou shalt not let thy cattle gender with a diverse kind."- Leviticus 19:19, 1616

A research conducted by Richard A. Boser *et al* in 1998 discovered that female and male students perceived some aspects of technical education differently. Female students consistently perceived technology to be less interesting than did male students. More females perceived technology to be an activity for both boys and girls. With the exception of industrial arts, the instructional approach used did not cause this bias to improve. Although all students perceived technology as less difficult as they experienced technological learning activities, females believed technology to be a more difficult subject than did males.

2.3 Basic Technology

Basic Technology is a pre-vocational subject thought in the Junior Secondary School. It came in to existence with the introduction of universal basic education. It was designed to respond to the ideals of the millennium development goals; the goals of self-reliance. The universal basic education lays a strong foundation for functional numeracy, and literacy, basic scientific and technological skills as well as ethical and moral values. The curriculum incorporates the basic skills of entrepreneurship and lifelong learning. The objectives of Basic Technology include:

1. The laying of sound basis for scientific and reflective thinking.
2. Giving the child opportunity for developing manipulative skills that will enable him to function effectively in the society within the limits of his capacity;
3. Providing basic tools for further educational advancement including preparing for trade and crafting in the locality.

For the above objectives to be achieved the curriculum of Basic Technology is a compulsory subject comprising of the following: Metal work, Building, Automobile, Wood work, Electrical and electronic and Technical drawing. All these subjects can be chosen by the learner after his or her successful completion of Junior Secondary School as a trade in the Society or as a subject of interest at the Senior Secondary level.

2.4 Related Work

Numerous researches have been conducted globally on the issue of gender and its impact on technical and vocational education. Many of the findings and suggestions were contributed towards having a balanced opportunity for students who are interested in Technical and Vocational Education (TVED) especially in secondary school irrespective of their gender.

Ohiwerei (2009) [5] in his study on Vocational Choices among Secondary School Students: Issues and Strategies in Nigeria examined the problems that are associated with vocational choices of secondary school student, and it was revealed that secondary school students are faced with the challenge of choosing a vocation right from the colonial master to date in our educational system. He also discovered that there are so many factors that are responsible for the challenge of vocational choice, among which are gender, parents, teachers, peer groups and subject study. He opined that parent must not force their children to choose a vocation; student must not choose a vocation because he or she sees his or her friends choosing the vocation and student must choose a vocation where he or she has intellectual, ability, aptitudes, and interest.

Christiana (2010) [1] in her research said More boys than girls favour technology education while Linver (2002) [4] in her research on Influences of Gender on Academic Achievement was of the view that, in order to encourage more women into math, science, and technology fields, interventions need to be designed that focus not on the academic achievement of women but in how to make technology related occupations more interesting for young and high achieving women. This type of intervention should start early in the academic careers for these adolescents and young women; she said, "our results suggest the lack of interest in technology begin earlier than the junior high school years and never improve."

3. Methodology

The research design adopted for this study is the survey design. The target population for this study is Junior Secondary School (JSS) students of the public and private secondary schools in Ikenne Local Government Area of Ogun State. Twenty students offering Basic Technology as a subject were randomly selected from five secondary schools in Ikenne Local Government Area. The sampling technique adopted was the stratified random sampling technique with ten each of male and female students selected from each school. Resultantly the sample size is one hundred (100). The respondents cut across students from JSS 1 to JSS3. An instrument titled "Impact of Gender on Students Interest and performance in Basic Technology Questionnaire (IGSIBTQ)" was used to gather data for the study. The first part contained demographic/general background information while the

second part contained twenty statements with four point like t-type rating scale of SA, A, D and SD. The research instrument was validated by 2 senior lecturers in education and the Cronbach alpha (0.80) shows that the technique is reliable. Mean and standard deviation was used to determine the difference between male and female performance as well as interest while T-test was used to test the hypothesis at 95% confidence level. The statistical tool employed is Statistical Package for Social Sciences Version 21.

4. Results and discussion

4.1 Results

Table 1: Demographic information of respondents

Variables	Categories	Frequency (n=99)	Percentage (%)
Gender	Female	45	45.5
	Male	54	54.5
Class:	JSS1	0	0
	JSS2	50	50.5
	JSS3	49	49.5
Age	11-Sep	15	15.2
	14-Dec	82	82.8
	15-17	2	2
Name of school	Babcock university High School	19	19.2
	Ilishan High School	20	20.2
	United High School	20	20.2
	De-Unique Private School	20	20.2
	Ikenne Junior High School	20	20.2
Type of school	Public	59	59.6
	Private	40	40.4

As shown in Table1, a total of 99 students of some selected secondary schools in Ikenne Local government of Ogun state serve as the sample size. 54.5% of the students are male while 45.5% are female. Majority of the students are within the age range of 12-14 years which is 82.8% of the total number of respondents. The type of school of respondents varied by 59(59.6%) and 40(40.6%) of Public and Private schools respectively. Moreover, it is worth knowing that each school number of respondents represent about 20.2% of the total number of respondents being used in this research work and also taking cognizant of the various classes of respondents which are JSS 1 (0%), JSS 2 (50.5%), JSS 3(49.5%).

Table 2: Mean Response on the difference in the performance of male and female students in basic technology?

S/n	Variables	Male mean (x_0)	Std. Deviation	Female mean (x_1)	Std. Deviation
1	Student's gender affects his/her performance in basic technology	2.0444	1.0215	2.037	0.8679
2	Male students perform better than female students in basic technology	2.7778	1.042	1.7037	0.8385
3	Female students perform better than male students in basic technology	1.9111	0.8744	2.4444	1.0581
4	Male students understand basic technology better than female students	2.7778	0.9975	2.0741	1.0434
5	Female students fear of basic technology affect their performance	2.6889	1.0622	2.463	1.0409
6	Male students do better than female students in basic technology practical	2.8889	1.0493	2.3148	1.0785
7	Teachers' gender affect their student performance in basic technology	2.3333	1.0225	1.963	0.9706
8	Female students do not like basic technology practical activities	2.7111	0.8153	2.3519	0.9743
9	Male students perform better because they are encouraged by their parents	2.6	1.009	1.963	0.9706
10	Female students perform poorly because they are discouraged by their parents	2.1111	1.005	1.6111	0.9599
		2.4844	0.5784	2.0926	0.4937

Scale: Strongly Agree (SA) -4, Agree (A) -3, Disagree (D) -2, and Strongly Disagree (SD) 1

Information from the table indicated that Responses of respondents on the difference in the performance of male and female students in basic technology vary slightly. The mean of the responses of respondents concerning the variable on Male students do better than female students in basic technology practical is 2.6562 which is closer to agree response of the scale.58.2% indicated agree and strongly agree. 23.7% which mean value is 1.8763 agreed that Female students perform poorly because they are discouraged by their parents. The mean value of 2.2143 (Male students perform better than female students in basic technology) indicates that most respondents disagreed to the statement.

Table 3: Response on difference in the interest of male and female students in basic technology?

S/n	Statements	Male mean(x0)	Std. Deviation	Female mean(x1)	Std. Deviation
1	Female students are more interested in basic technology than male students	2.1778	0.9837	2.3519	0.9144
2	Male students are very interested in basic technology practical class than female students	3.0444	0.999	2.6852	0.9075
3	The period allocated to basic technology should be reduced	1.9333	1.0313	1.8889	0.945
4	Basic technology should be optional for female students	1.9778	1.1772	2.0185	0.9613
5	Basic technology should be compulsory for male students only	2.8667	1.0996	2.3148	1.0785
6	My mates influence my interest in basic technology	2.6889	1.1246	2.1481	1.1395
7	My teacher's methods of teaching basic technology affects my interest	2.0889	1.1836	2	1.064
8	The cumbersome nature basic technology affects my interest	2.2889	1.1798	2.1852	1.0474
9	I will like to continue in technical class in senior secondary school	2.9333	1.3038	2.5556	1.0931
10	I wish to pick a career in the field of engineering and technology in the future	3	1.1871	2.4815	1.0231
		2.5	0.7529	2.263	0.414

The table above show a positive indication about respondents (68.4%) interest to continue in technical class in senior secondary school this variable has a mean value of 2.8421 which falls closer to agree responses. The table above shows that with little encouragement and good teaching skills the disparities existing on gender of students towards basic technology can change positively. For instants, I hate basic technology responses falls on disagree, contrary to this they like it but may be face with fear as indicated on table 2.

Table 4: Cross-tabulation on the variable: I will like to continue in technical class in senior secondary school and gender

			Gender		Total
			Male	Female	
Will like (interest)	Strongly Disagree	Count	6	11	17
		% within sex	14.30%	20.80%	17.90%
	Disagree	Count	3	10	13
		% within sex	7.10%	18.90%	13.70%
	Agree	Count	12	21	33
		% within sex	28.60%	39.60%	34.70%
	Strongly Agree	Count	21	11	32
		% within sex	50.00%	20.80%	33.70%
	Total	Count	42	53	95
		% within sex	100.00%	100.00%	100.00%

Table 4 and Figure 1 show clearly that male students have more interest for basic technology.

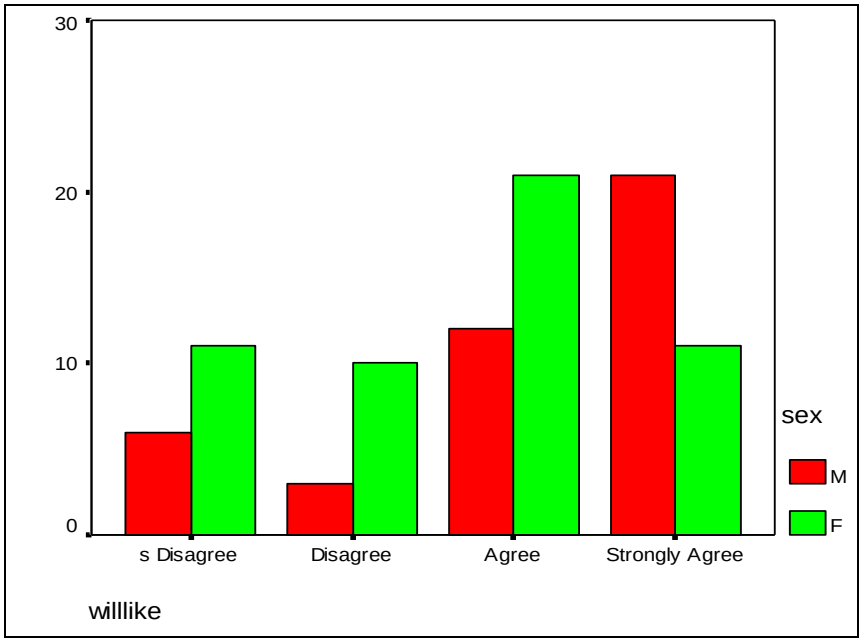

Fig 1: Chart showing the cross-tabulation of variable "I will like to continue in technical class in senior secondary school" and gender

4.2 Test of Hypothesis

Hypothesis One

H_O: There is no significant difference in the performance of male and female students in basic technology.

H_1: There is significant difference in the performance of male and female students in basic technology.

Table 5: T-Tests on the difference in the performance of male and female students in basic technology

Variables	N	X	Sd	T-cal	t-table value	d.f.	Sig. (2-tailed)
Male	45	2.4844	0.5784	3.637	1.98	97	0
Female	54	2.0926	2.0926				

$p \leq 0.05$

The calculated t-test value (3.637) is greater than the table value of 1.98 with significance level of 0.05 which is significant. Therefore, the null hypothesis (H_0) is rejected and the alternate hypothesis is accepted which states that There is significant difference in the performance of male and female students in basic technology.

Hypothesis Two

H_O: There is no significant difference in the interest of male and female students in basic technology

H_1: There is significant difference in the interest of male and female students in basic technology

Table 6: T-Tests on difference in the interest of male and female students in basic technology

Variables	N	X	Sd	t-cal	t-table value	d.f.	Sig. (2-tailed)
Male	45	2.5	0.7529	1.98	1.98	97	0.05
Female	54	2.263	0.414				

$p \leq 0.05$

The calculated t-test value (1.983) at D.F. of 97 is greater than the table value of 1.98 with significance level of 0.050. Therefore, the null hypothesis is rejected and the alternate hypothesis is accepted which states that There is significant difference in the interest of male and female students in basic technology

4.3 Discussion of Findings

Table 2 result shows that gender affects students' performance in basic technology. It revealed that male students perform better than female students. This is partially due to the fact that male students do well the female students in basic technology class and the discouragements that female students receive from their parents. Even though there is a general disagreement to item 1and 2 which states that a person's gender affects his/her performance in basic technology or and male student do better than female students.

Table 3 shows that gender does not affect students' in basic technology. The students' responds to item 9 reveals a positive indication of a general interest in basic technology. Both male and female students mostly agree to continue in technical class in senior secondary school. The table above shows that with little encouragement and good teaching skills the disparities existing on gender of students towards basic technology can change positively. For instants, 'I hate basic technology,' responses falls on disagree, contrary to this they like it but may be faced with fear as indicated on table 2. 38.

From the study, it was found out that:

1. The interest of male and female students in Basic Technology was significant.
2. There is a significant difference in the performance of male and female students in Basic Technology.

5. Conclusion and recommendation for further research

Based on the findings of the research, the following conclusions were drawn. The male Junior Secondary School students have a more positive attitude towards Basic Technology than their female counterparts. This can be attributed to the fact that many female students dread calculation, tedious construction practical and workshop practice and discouragement from parents. Though there is a difference in performance of male and female students, they all have the same interest. Instructional methodology, tutor's personality, depth of knowledge in the subject, and commitment have a significant influence on the interest and performance of students in Basic Technology.

In view of the students' responses in table 2 and 3, the following recommendations are hereby made:

1. In addition to the effort of the school authority to promote students' interest through speech and prize giving day. Individuals, private organization, the community, authors and publishers of Basic Technology and should complement the school authorities' efforts through scholarship awards to deserving students.
2. Basic Technology tutors should be more dynamic and proactive both in and outside the classroom so as to stimulate students' interest in the subject and thus attract improved performance.
3. Stakeholders in the educational sector should ensure the availability of instructional materials which will aid in simplifying teaching and learning and thus result in better performance.
4. Issues of insufficient number of periods should be looked into owing to the fact that Basic Technology is a practical oriented subject.
5. There is a need to have a well-equipped Basic Technology workshop to stimulate students' interest and comprehension.
6. Parent should be counseled against misguiding their ward with biased guidance in respect of choices of subjects without considering the children's interest, ability and performance.

The following suggestions for further research have been made so as to minimize the limitation involved in the generalization of results or findings of this study.

1. Similar studies can be conducted at larger scale that is,

state, regional or national level in Basic Technology.
2. It will also be interesting to look at the attitude of students toward other prevocational subjects generally in the Junior Secondary School.

References

1. Christiana I, Oriahi PO, Uhumuavbi LI. The Choice of Science and Technology Subjects among Secondary School Students. J Soc Sci, 2010; 22(3):191-198.
2. Federal Republic of Nigeria. National Policy on Education, Abuja: NERDC Press, 2004, 2-5.
3. Richard AB. Electronic Journal of Technology 1998, 10. http://scholar.lib.vt.edu/ejournals/JTE/v10n1/boser.html
4. Linver MR, Davis-Kean P, Eccles JE. Influences of Gender on Academic Achievement Presented at the biennial meetings of the Society for Research on Adolescence, New Orleans, LA, 2002.
5. Ohiwerei FO, Nwosu BO. Asian Journal of Business Management, Maxwell Scientific Organization, 2009.
6. Opoola AL, Adeniyi EF. Strategies for Improving the Teaching and Learning of Basic Technology in Junior Secondary Schools; Advances in Arts, Social Sciences and Education Research Science and Education Development Institute, 2013 Printed in Nigeria. 2013; 3(9). Sept: 5773 - 584, 2013 ISSN: 2276 – 6715 http://www.ejournal.sedinst.com