

Influence Of Gender On Academic Achievement And Retention Of TVET Students In Nigeria

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Abstract

The study investigated the influence of gender on academic achievement and retention of technical and vocational education and training (TVET) students in Nigeria. The design of the study was pre-test, post-test and retention test quasi experimental design. The study was conducted at public TVET institutions in Nigeria. Two research questions and two null hypotheses guided the study. The population for the study was 122 TVET students randomly selected from six TVET institutions from each of the six geo-political zones that make up Nigeria. The instrument used for data collection was technical and vocational education achievement test (TVEAT). The instrument had three versions: pre-test, post-test and retention test which were the same except for the reshuffling and swapping of the questions and options of the 60 objective questions used for the study. The instrument was subjected to face and content validation. The reliability coefficient using Kuder Richardson (K-R 20) was 0.78. The reliability test was conducted using 20 students at Federal college of education (technical) Asaba in Delta State, Nigeria. Data collected for the study were analyzed using mean with standard deviation to answer the research questions. Analysis of covariance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance. The major finding was that the male students of TVET institutions in Nigeria have a better academic achievement and retention when compared to their female counterparts. Based on the finding, it was recommended that the education of girls in technical and vocational education should be encouraged in Nigeria.

Keywords: Gender, TVET, achievement, retention,

INTRODUCTION

The term gender can be defined as the amount of masculinity and feminist found in persons (Merriam, 2021). Gender is the range of physical, biological, mental and behavioral characteristics pertaining to and differentiating the feminine and the masculine population (Amosu, 2011). Gender seems to be one of the factors that affect students' academic achievement especially in technical and vocational education. It affects the students' academic achievement and retention in technical and vocational education and training (Nolen-Hoeksama, 2011). Female students attributed poor achievement in technical education to their lack of ability, while men also attributed it to lack of hard work. Female students are more susceptible than male students to the negative consequences of 'fear of successes' or 'fear of failure'. This can lead to great difference in academic achievement and retention and more specifically to female students under performing their male counterpart (Nolen-Hoeksama, 2011). This susceptibility of the female students sometimes makes them to have poor academic achievement in technical and vocational education. The academic phobias which are easily seen on female students do affects their academic achievement in technical and vocational education and training (Harb,2016).

According to Oguejiofor and Ogbonna (2022), technical and vocational education and training (TVET) is academic and vocational preparation of students for jobs involving applied science and technology. It is training designed to advance individuals general proficiency in relation to their occupation. It provides the skills, knowledge and attitude necessary for employment. Technical and vocational education and training (TVET) is an academic programme that prepares youth for world of work (Onoh, 2011). It develops work related skills and mastery of knowledge and scientific principle. It provides broad based technical skills and knowledge on which different occupations can be based on (Elobuike, 2010). It provides continuous vocational training to the work force. Uzodinma & Obayi (2018) opined that technical and vocational education and training (TVET) has the power to re-skilling individuals to enable them to be employable. It facilitates economic growth by increasing the productivity of workers. It develops in an individual personal capabilities and broad based knowledge to ensure critic-creative thinking for better academic achievement and retention.

Academic achievement and retention in relation to gender is based primarily on the socio-cultural difference between girls and boys. Some vocations and professions have been regarded as men's while others as women's. It is a well known fact that parents assign task like fixing the bulbs, climbing ladders to fix or remove things to the boys. On the other hand, chores like dish washing, cooking and cleaning are assigned to the girls. In a nut shell, what are regarded as complex, technical and difficult tasks are allocated to boys whereas girls are expected to handle the relatively easy and less demanding tasks. As a result of this, the boys do start early to prepare their mind towards technical information and learning. This equips the boys for technical education (Amosu, 2011). Early preparations produce better performance. It seems like the early preparation of the boys gives them a great advantage over girls. The socio-cultural foundation starts early enough to prepare the male for technical works, this help to equip the males better than the females and thereby may helps the male to perform better than the females in technical education.

Jim (2014) opined that socio-cultural background upbringing is a major reason male students have better academic achievement than female in technical and vocational education. According to Jim, another reason females perform poorly in technical courses when compared to their male counterpart can be traced to gender difference in the cognitive abilities of students. He opined that female outperforms males on several verbal skills. Males on the other hand, outperform females in spatial skills tasks such as mental retention, spatial perception and spatial visualization. Marazano (2014) stated that gender gap in technical and vocational education is biologically driven. He stresses that parental hormones circulating in the brain encourage differential development in the hemispheres of male and females. Many socio-cultural factors jointly and separately depress female interest and achievement in technical and vocational education. Smith (2010) explained that even technical education teachers discriminate against females. This discrimination attitude creates disadvantaged position for the girls.

The stereotypical discipline associated with males and females also affect the female performance in technical and vocational education. The Aristocrats era taught the males military subjects while the female were taught domestic subjects, all in an attempt to prepare them for their roles in the society (Pinky, 2014). Traditionally, technology traits are believed to include remoteness, impersonality, detachment and objectivity (Clark, 2013). More often than none, these traits are readily associated with the male in the society, while passivity, nurturance and subjectivity are held to be feminine attributes with this association, science and technology seem to be given to masculine gender. According to Brown (2013) this attribute and other social psychological barriers alienate girls with potentials.

The concern of this study is that it seems that gender influence the academic achievement and retention of TVET students in Nigeria. The problem of this study therefore is "what are the influence of gender on the academic achievement and retention of TVET students in Nigeria. The purpose of this study is to determine the influence of gender on academic achievement and retention of TVET students in Nigeria. Specifically, the study seeks to determined:

1. the mean achievement scores of male and female TVET students in Nigeria.
2. the mean retention scores of male and female TVET students in Nigeria.

Research Questions

The following research questions were posed to guide the study.

1. What are the mean achievement scores of male and female students of TVET in Nigeria using TVEAT?
2. What are the mean retention scores of male and female students of TVET in Nigeria using TVEAT?

Null Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

1. There is no significant difference between the mean achievement scores of male and female students of TVET in Nigeria using TVEAT.
2. There is no significant difference between the mean retention scores of male and female students of TVET in Nigeria using TVEAT.

Method

The design of the study was a quasi-experimental research design. The experimental design used non equivalent control groups involving pre-test, post-test and retention test design.

The study was conducted at six public TVET institutions randomly selected from six geo-political zones that made up Nigeria. The population for the study was 122 students comprised of 10 females and 112 males. The population for the study was grouped into experimental and control groups. The entire population of 122 was used for the study. There was no sampling because the population was manageable.

The instruments used for data collection was technical and vocational education achievement test (TVEAT). The technical and vocational education achievement test was administered as pre-test, post test and retention test in a disguised manner. The post test was disguised from pre test by renumbering. The retention test was disguised from pre test and post test also by renumbering. The technical and vocational education achievement test was a 60 item instrument of multiple choice questions with four responses option A – D. The Technical and Vocational Achievement Test (TVEAT) was subjected to face and content validations. Three experts validated the TVEAT. The technical and vocational achievement test instrument was subjected to trial testing on students to ascertain the reliability of the instruments. The internal reliability

co-efficient of the instrument was computed using Kuder Richardson formula 20 (K-R 20) and the reliability co-efficient of 0.78 was obtained.

One hundred and twenty-two pre- TVEAT copies of the instrument were administered on students before the treatment which lasted for six weeks. At the end of the treatment, a post- TVEAT was administered and two weeks after the post-TVEAT, retention test was administered. Data collected for the study were analyzed using SPSS version 22. Mean with standard deviation were used to answer all the research questions. Analysis of covariance (ANCOVA) was used to test the hypotheses formulated for the study at 0.05 level of significance. The decision rule is that if the calculated significant value is less than 0.05 significant level the null hypothesis will be rejected, but if it is equal or greater than 0.05 the null hypothesis is accepted.

RESULT

Data for the study were presented and analyzed based on the research questions and hypotheses that guided the study. The details are contained in the tables 1-4.

Research question 1

What are the mean achievement scores of male and female students of TVET in their academic achievement in technical and vocational education and training using TVEAT in Nigeria?

Table 1: The Mean Achievement Scores and Standard Deviation of Male and Female Students of TVET on their Academic Achievement in Technical and Vocational Education and Training using TVEAT in Nigeria

Group	Gender	N	Pre - Test		Post -Test	
			Mean	SD	Mean	SD
Experimental	Male	76	8.12	1.06	8.37	1.08
	Female	6	6.03	0.08	6.33	0.21
Control	Male	36	5.86	0.48	7.82	0.70
	Female	4	5.80	0.23	6.85	0.10

The result on Table 1 shows that the mean achievement score of the male in the experimental group for pre-test and post-test were 8.12 and 8.37 respectively and standard deviation were 1.06 and 1.08 respectively. The female in the experimental group have mean achievement score of 6.03 and 6.33 with standard deviation of 0.08 and 0.21 respectively. The mean achievement score of the male in the control group were 5.86 and 7.82 with standard deviation of 0.48 and 0.70 respectively and female in the control group were 5.80 and 6.85 with standard deviation of 0.23 and 0.10 respectively. This means that male students of TVET in Nigeria achieved better than female in both the experimental and control groups. Therefore male students of TVET in Nigeria have better academic achievement in technical and vocational education and training when compare with their female counterpart.

Null Hypotheses One

There is no significant difference between the mean achievement scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT in Nigeria.

Table 2: ANCOVA Table for the Test of Significant Difference between the Mean Achievement Scores of Male and Female Students of TVET on their Academic Achievement in Technical and Vocational Education and Training using TVEAT in Nigeria.

Source of variation	Sum of square	Df	Mean square	F	Sig.
Corrected Model	842.325	2	421.167	17.118	.000
Intercept	908.728	1	908.728	36.935	.000
Pre	265.055	1	265.055	10.773	.000
Group	180.499	1	180.499	7.336	.169
Error	1943.687	79	24.608		
Total	141367.000	82			
Corrected Total	86.012.685	81			

The result on Table 2 shows that the calculated F-value for the group treatment of students of TVET on academic achievement in technical and vocational education and training using TVEAT in Nigeria was 7.336 with 0.169 level of significance thus, null hypothesis of no different between mean achievement score of male and female students of TVET on their academic achievement on technical and vocational education and training using TVEAT was not rejected at 0.05 level of significance. This means that the f-cal was statistically significantly difference at $p > 0.05$ level. Therefore there was no significant difference between the mean achievement scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT in Nigeria.

Research Question Two

What are the mean retention scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT in Nigeria?

Table 3: The Mean Retention Scores and Standard Deviation of Male and Female Students of TVET on their Academic Achievement in Technical and Vocational Education and Training using TVEAT in Nigeria.

Group	Gender	N	Retention	
			Mean	SD
Experimental	Male	76	6.92	0.65
	Female	6	5.53	0.49
Control	Male	36	5.62	0.49
	Female	4	5.10	0.12

The result on Table 3 shows that the mean retention scores of male in the experimental and control groups were 6.92 and 5.62 with standard deviation of 0.65 and 0.49 respectively and the female experimental and control groups have mean retention scores of 5.53 and 5.10 with standard deviation of 0.49 and 0.12 respectively. This means that the male students of TVET achieved better when compared with their female counterpart. The result shows that male students of TVET in Nigeria have better academic retention on technical and vocational education and training when compare with their female counterpart.

Null Hypotheses Two

There is no significant difference between the mean retention scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT in Nigeria.

Table 4 : ANCOVA Table for the Test of Significant Difference between the Mean Retention Scores of Male and Female Students of TVET on their Academic Achievement in Technical and Vocational Education and Training using TVEAT in Nigeria.

Source of variation	Sum of square	Df	Mean square	F	Sig.
Corrected Model	26.852	2	13.426	20.867	.000
Intercept	58.713	1	58.713	91.251	.000
Pre	7.729	1	7.729	12.013	.001
Group	6.411	1	6.411	9.964	.002
Error	50.830	79	.643		
Total	6846.280	82			
Corrected Total	77.682	81			

The result on Table 4 shows that the calculated F-value for the group of students of TVET on their retention on academic achievement in technical and vocational education and training is 9.964 with 0.002 level of significance thus, the null hypothesis of no different between mean retention score of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT was rejected at 0.05 level of significance. This means that the f-cal was not significantly difference at $p < 0.05$ level. Therefore, there is significant difference between the mean retention scores of male and female students of TVET on their academic retention in technical and vocational education and training using TVEAT in Nigeria.

DISCUSSION OF FINDINGS

The finding of the study on research question one showed that male students of TVET had a higher mean achievement score than the female students. The finding reveled that male students of TVET in Nigeria have a better academic achievement in technical and vocational education and training when compared with their female counterpart. The finding was in consonance with an earlier study conducted by Kelsey (2014) on a similar study and the result of the study indicated that male students retain technical knowledge more than the female students.

The result of hypothesis one indicated that there is significant difference between the mean achievement scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT. The null hypothesis was rejected; therefore there is significant difference between the mean achievement scores of male and female students of TVET on their academic achievement in technical and vocational education and training using TVEAT in Nigeria.

The result from research question two showed that the male students of TVET obtained higher retention score when compared with their female counterpart in both experimental and control groups. This shows that male students of TVET in Nigeria have a better academic retention in technical and vocational education than their female counterpart. The hypothesis two tested indicated that there was no significant difference between the mean retention scores of male and female students of TVET on their academic retention on technical and vocational education. The null hypothesis was therefore not rejected.

CONCLUSION

The conclusion was made based on the finding of the study. The result of the study provided empirical evidence that gender influences the academic achievement and retention of students of TVET in technical and vocational education. The study showed that male students had a better academic achievement and retention in technical and vocational education when compared with their female counterpart. The ability of the male students to retain technical education information is higher than that of the female and they perform better than the females.

RECOMMENDATIONS

The following recommendations were made based on the findings of the study.

1. The education of girls in technology and vocational education related courses should be encouraged.
2. Teachers and parents should start early to develop in the girl child a positive attitude about technical education courses..
3. The Federal and State ministries of education should create encouraging incentives such as scholarship for females in technical education.

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