EFFECTS OF GENDER ON STUDENTS' ATTITUDE TO PHYSICS IN SECONDARY SCHOOLS IN OYO STATE, NIGERIA

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Abstract

This study examined the effects of gender on students' attitude in Physics in senior secondary schools in Oyo State, Nigeria. The participants for this study were 160 Senior Secondary School two (SSS2) students offering Physics in Ibadan, Oyo State. The selection was based on purposive sampling technique which involved four schools. Data collected by students' attitude Physics scale (SAPS) were analysed using ANOVA. The Multiple classification analysis was used to explain the magnitude of the post Attitude of the different categories of the students. In line with the findings of this study, Gender was found to have no effect on Students' Attitude but there was slight difference in Attitude of the students in favour of females. Therefore, stakeholders should put differences in the Attitude of males and females into consideration in the development and implementation of curriculum.

Keyword: Gender, attitude

Introduction

Gender, the characteristics, whether biological or socially influenced, by which people define male or female (Myers,D.G,2002). He stated gender schema theory as the organized networks of knowledge about what it means to be males or females. According to this theory, children and adolescents use gender as an organizing theme to classify and understand their perceptions about the world. This theory is influenced by society's belief about the trait of females and males, and influences processing of social information and social esteem(Woolfork, 1995) as cited by Myers,D.G(2002).

Attitude, the opinion and feeling that you usually have about something (Della Summers, 2008).

Gagne (1979) cited by Fasakin,P.J.(2012) recognized attitude as a major factor in a subject choice, also considered attitude as a mental and natural state of readiness, organized through experiences exerting a directive influence upon the individual's responses to all objects and situation with which it is related.

Erdemir,N.&Bakirci (2009) described attitude as tendency for individuals who organize thought, emotions, and behaviours towards psychological object. Human beings are not born with attitudes they learn afterwards. Some attitudes are based on the peoples own experience, knowledge and skills and some are gained from other sources. However, the attitude does not stay the same. It changes in the couple of time and gradually.

Gok,T.,&Silay, I.,(2010) asserted that, Social psychologists have viewed attitudes as having three components: cognitive, affective and behavioural. They further opined that cognitive component is a set of beliefs about attributes of the attitudes object and its assessment is performed using paper and pencil tests. The affective component include feelings about the object and its assessment is performed by using psychological indices. Finally the behavioural component pertains two the way in which people act toward the object and its assessment is performed with directly observed behaviour (Salta,K., & Tzougraki, C., 2004).

The differences in attitude of male and female towards Physics have been an issue in many countries. In response to this, many researches have been carried with mixed reports. Therefore, this research focused on the effects of gender on students' attitude to Physics.

Research Hypotheses

The following hypotheses were raised and tested at the 0.05 level of significance:

Ho_1: There is no significant effect of gender on Students' attitude in Physics

Ho_2: There is no significant difference between the attitude of male students and their female counterparts in Physics.

Review of Related Literature

According to Oludipe,D.I,D.I., (2008),what has remained the main focus of great concern in the field of science education are the biases and misconceptions about women and science, i.e. Science is a male enterprise (Erinosho,Y.E., 2005). Many researches had been carried out on gender issues with mixed reports in science education (Bilesanmi-Awoderu,J.B.,

2002;Erinosho,Y.E., 2005.). Girls are being encouraged and sensitized into developing positive attitudes towards science. However, Afuwape,O.M, M.O,et al (2008), reported that Chi-chau (1997) investigated the effect of classroom goal structures on children's goal orientation, mathematics achievement and intrinsic motivation. He also assessed gender effects, and the interaction effects between goal structure and gender in these learning situations on the variables related to mathematics learning. The results showed no significant gender effects on the variables of goal orientation, mathematics achievement, intrinsic motivation, and beliefs about failure.

Moreover, they reveal that there is a significant difference between the opinion of male and female science teachers on the improvement strategies for participation and performance of girls in the school science. He concluded that considerable attention needs to be directed at girls' participation and performance in secondary school science in Nigeria with a view to strengthening the girls in the area of access to professions, which demand scientific and technological background. By this, the un-equal access to wealth, power, education and health in favour of males will be removed.

Kolawole,E.B., 2007;Afuwape,O.M&Oludipe,D.I,2008 found out that there are significant differences in the cognitive, affective and psychomotor skills of students in respect of gender while other researchers have provided reports that there are no longer distinguishing differences in the cognitive, affective and psychomotor skill achievements of students in respect of gender (Arigbabu,A.A. & Mji,A. 2004; Bilesanmi-Awoderu,J.B., 2006).

Materials and Method

Research Design

The study adopted a 2x3 pretest and posttest controlled group quasi-experimental design.

Sample and Sampling Technique

The participants for this study were 160 Senior Secondary School two (SSS2) students offering Physics in Ibadan, Oyo State. The selection was based on purposive sampling technique which involved four schools Students' Attitude to Physics Scale (SPAT) was used by researcher and was validated through experts ' review of the items. The suggestions and comments and colleagues in related disciplines who read through the instrument were taken into consideration in removing or adding some items to the instruments. The final draft was then administered to 20 students in a neutral school who were not part of the sample. This was used to compute

reliability coefficient of the Students' Attitude to Physics Scale using Cronbach Alpha in which 0.88 was obtained.

Data Analysis

Data collected was analysed using ANOVA. The Multiple Classification was used to explain the magnitude of the post Achievement, Attitude and Practical Skills of the different categories of the students.

Result and Discussion

Ho_1: There is no significant effect of gender on Students' attitude in Physics.

Table 1: Summary of ANOVA of Posttest Attitude by Gender

Source of Variance	Hierarchical Method				
	Sum of Squares	Df	Mean Square	F	Sig
Covariates PREATT	3064.154	1	3064.154	111.410	.000
Main Effect GENDER	34.161	1	34.161	1.242	.267

Table 1 above revealed that $F_{(1,151)}$ =.34.161 and F_t= 3064.154 at df of 1 and p>.05 level of significance. Since $F_{(1,151)}$ =.34.161 is less than F_t=3064.151, the $F_{(1,151)}$ =.694 is not significant statistically. Hence the null hypothesis 1 is not rejected. Therefore, there was no significant effect of gender on students' attitude in Physics in Ibadan, Oyo State.

Ho_2: There is no significant difference between the attitude of male students and their female counterparts in Physics.

Table 2: Multiple Classification Analysis of Achievement Scores by Gender

Variable+Category (Grand Mean=9.03)	N	Predicted Mean		Deviation		Eta	Beta
		Unadjusted	Adjusted factors and covariates	Unadjusted	Adjusted for factors and covariates		
GENDER male	80	39.3750	39.66683	-.7500	-.4567	.110	.067
female	80	40.8750	40.5817	.7500	.4567		

Table 2 above revealed that female students' attitude improved slightly ($\overline{X}$ =40.58;Dev.=.46) than male students ($\overline{X}$ =39.67;Dev.= -.46) is significant statistically. Hence the null hypothesis 2 is rejected. Therefore, there was significant difference in the attitude of male and female students in Physics in Ibadan, Oyo State.

It also revealed that the female students' attitude to Physics was improved. This result which at variance with earlier reports that there are no longer distinguishing differences in the cognitive, affective and

psychomotor skill achievements of students in respect of gender (Arigbabu,A.A. & Mji,A. 2004; Bilesanmi-Awoderu,J.B., 2006) but in line with Kolawole,E.B., 2007;Afuwape,O.M&Oludipe,D.I,2008 who found out that there are significant differences in the cognitive, affective and psychomotor skills of students in respect of gender.

Conclusion and Recommendations

In line with the findings of this study, Gender was found to have no effect on Students' attitude but there was a slight difference in their attitude in favour of females.

Based on the findings of the study, the following are recommended:

1. Gender sensitivity should be abolished in the curriculum development
2. Government should scrap all policies that favour one sex over the other.
3. There should be no disparity in treating male and female in the classroom.

Suggestions for further studies

The generalization of the present study is limited based on some constraints under which the investigation was conducted. With these constraints, the following areas are suggested for further studies: a replication of the study in other subjects, interaction effects of gender with other variables and replication of the study involving the use of more comprehensive research instruments and more trained research assistants to ensure reliable data.

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