

Effect of Gender on Students Academic Achievement in Secondary School Social Studies

Peter Ogbianigene Dania (Ph.D.)

Department Of Social Science Education, Delta State University, Abraka, Nigeria

E-mail of the author: daniapore@yahoo.com

Abstract

This paper investigated the effect of gender on students academic achievement in secondary school Social Studies. The study adopted a quasi-experimental design (2x2 non-randomized pre-test, post-test control group) comprising six groups made up of four experimental groups and two control groups. Six schools and one hundred and eighty (180) Upper basic 2 students in Delta and Edo States made up the sample for the study. Six intact classes were randomly selected and assigned to experimental and control groups. The instrument used in this study is the achievement instrument tagged "Social Studies Achievement Test" (SSAT). The validity and reliability of these instruments were established. The reliability of the instruments was established using Pearson product moment correlation coefficient (r). And the reliability coefficients obtained was 0.79. Means, Standard Deviation, Analysis of covariance (ANCOVA) Result revealed that: gender (male/female) had no significant effect on students achievement in Social Studies and finally, result showed that there was significant interaction effect of treatment and gender on students academic performance in Social Studies. Based on the findings, some recommendations were made.

Keywords: Gender, academic achievement

Introduction

Traditional and stereotypical/approaches to problem solving are grossly inadequate in the face of complex realities of our time. We need to be able to design ways forward and come up with different alternative solutions to seemingly naughty challenges of life. Unfortunately, the traditions of education and the thinking culture of our society make no provision for design -we see it as applying only to buildings and furniture (Hassan & Ogunyemi, 2008).

Social Studies is one of the compulsory subjects studied in junior secondary schools in Nigeria. Udoh (1993) and Mansaray (1996) point out that "the subject is a discipline that can be used in solving problems of relationship and interaction in man's dynamic environment". For Bergesom (2003), Social Studies must be centred on innovative methods that aim at seeking the truth which include problem detecting, problem solving, and learning by experimenting and discovery. The importance of Social Studies in the Nigerian Educational System cannot be overemphasised. The objectives of Social Studies education which are in line with the philosophy and aims of Nigerian Education are hinged on the development of high competencies required for solving man's diverse environmental problems for better and effective social living. Specifically, the focus of Social Studies is to extricate the Nigerian child from the apron strings of colonial education which merely propagated foreign values and therefore acquaint him with his own cultural values and traditions. The teaching of Social Studies is directed towards building a virile Nigeria Nation, irrespective of ethnic diversity. It is also directed towards promoting citizenship and values education in addition to skills development (Adeyemi and Ajibade, 2011). As noted by Akpochafo, (2001), in spite of the immense benefits to be derived from the introduction of Social Studies in our school curriculum there seems to be a poor handling of the subject in the secondary schools.

Of great concern is that most Social Studies teachers still rely mostly on the lecture method for imparting information. While the manner of presentation is supposed to be activity-based, most Nigerian secondary school teachers rely on the lecture method. Studies like those of Umeoduagu (1994), Okobia (2000), Akpochafo (2001) and Arisi (2002) have pointed out that despite the more than thirty year existence of learning style theories (detailing how people learn), most teachers still dispense information using conventional lecture method without regard to students' learning abilities. This teaching method is theoretical and teacher-directed, instead of being constructive or activity-based. In the lecture method, the teacher, according to Akinlaye, Mansaray and Ajiboye (1996), Akinlaye, Bolarin, Olaniyonu and Ayodele (1997), Ogundare (2000) and Oganwu, (2004) simply becomes the expositor and drill master while the learner remains the listener and a storehouse of facts that can be retrieved when a student hears his name called by the teacher.

The problem of students' under-achievement in Social Studies has been a much discussed educational issue since the early 80's when it became a compulsory subject in Nigeria (Dubey & Onyabe, 1980; Orimoloye, 1984; Lemlech, 1984, 1990; Iyewarun, 1988; Mansaray, 1991; Akinlaye, 1997; Makinde, 1999; Busari, 2000; Oganwu, 2004 and Adeyemi & Ajibade, 2011). Such discussions have consistently centred round instructional strategies used in teaching the subject. When similar situations of under-achievement were experienced in Mathematics and the Sciences in Nigeria, new instructional methods were employed such as mastery learning, peer tutoring,

computer-assisted instruction, simulation games and brainstorming. A study of teaching behaviour and students' achievement in science by Akuezuilo (1989) shows that student activities are better than teacher activities in promoting authentic learning, at least in junior secondary school integrated science classrooms.

In view of the fact that gender of participants may have impact on the students academic performance, this study will use gender as moderator variable. Gender differences in achievement have been examined for some time resulting in a substantial body of literature (Jack and Johannes, 2001). The importance of examining instructional strategy in relation to gender is based primarily on the socio-cultural differences between girls and boys (Abra, 1991). Traditionally, girls in our society have been encouraged to conform, whereas boys are expected to be active and dominant risk-takers. Corroborating this view, Hassan and Ogunyemi, (2008) acknowledge that most boys are provided with toys that enhance their visual- spatial ability such as trucks, Legos (toys consisting of plastic building blocks and other components) and model. Spencer (2004) also affirms that that the games of girls are often highly structured requiring turn taking and rules. Thus, social expectations and conformity pressures may create cultural blocks to girls. Fabunmi (2004) in a study discovered that gender composition has a significant relationship with students' academic performance and that gender composition has a significant influence on secondary school students' academic performance. Beside this, inconsistent findings have been discovered on gender differences and academic achievement (Bello, 1990; Boling & Boling 1993; Lau & Li 1996; Gimba, 2006; Nsofor, 2006; Yaki, 2006 and Olowe, 2010). There is therefore the need to find out if gender have effect on students academic achievements in Social Studies.

Purpose of the Study

1. To investigated the effect of gender on the academic achievement of students in Social Studies.
2. To found out the interaction effect of treatment and gender on the academic achievement of students in Social Studies.

Research Questions

The following research questions guided the conduct of the study:

1. What is the influence of gender (male and female) on academic achievement of students in Social Studies?
2. What is the interaction effect of treatment and gender on students academic achievement of students in Social Studies?

Research Hypotheses

The following hypotheses were formulated and tested:

Ho₁: There is no significant main effect of gender on students academic achievement of students in Social Studies.

Ho₂: There is no significant interaction effect of treatment and gender on students academic achievement of students in Social Studies.

Methodology

The study employed the quasi-experimental setting of non-equivalent (pre-test and post-test) and control group design. The reason for the adoption of this design was hinged on the fact that intact classes were randomly assigned to experimental and control groups respectively, since it was not possible to have complete randomization of subjects. The sample for this study consisted of one hundred and eighty (180) Upper two (JSS II) students' from six (6) public secondary schools of the three senatorial districts of Delta and Edo States. The three senatorial districts- are the Delta Central, Delta North, Delta South (Delta State); Edo Central; Edo North, and Edo South (Edo State). In order to provide a sampling frame, the researcher conducted the multistage random sampling technique at four levels using the balloting technique.

The six schools used were far apart and no school was exposed to multiple treatments. This is to prevent contamination and spill over effect. Thus, none of the schools were taught any of the topics/units for the study before hand. The 30 students that were used to determine the reliability of the study were excluded from the total sample of students to be used for the study. In each of the cooperating schools, one arm of Upper Basic two was selected through a die for use. The instrument used in this study was the achievement instrument tagged "Social Studies Achievement Test" (SSAT). This consisted of 50 multiple-choice items drawn from Junior School Certificate Examination past questions as set by the Ministry of Education, Asaba, and was based on Upper Basic two Social Studies syllabus on six content areas namely: common heritage, citizenship, National symbol, leadership and followership, how leaders are chosen and growth and development. The instrument was validated before use using the test-retest method and the reliability coefficients of 0.79. SSAT was administered on the respondents as pre-test and post-test. The study lasted for a period of six weeks with the involvement of six research assistants that were properly trained in the use of the instructional modes and instrument. Data were analysed using mean, standard deviation and Analysis of Covariance (ANCOVA) statistical tools. The level of significance adopted is 0.05alpha.

Results and Discussion

Research Question 1

What is the influence of gender (male and female) on academic achievement of students in secondary school Social Studies?

Table 1: Mean and Standard Deviation Scores of Students Achievement Scores x Gender.

Gender	Pre-Test			Post-Test			Mean Gain
	N	X	SD	N	X	SD	
Male	86	52.35	12.25	86	64.63	13.57	12.28
Female	94	48.38	12.37	94	62.04	13.90	13.66
TOTAL	180	50.37	26.62	180	63.32	13.75	12.97

Data on Table 1 show that at pre-test, the achievement mean scores for males and females were 52.35 and 48.38 respectively. Similarly the standard deviations were 12.25 for the males and 12.37 for the females. After post-test, it was observed that for the males, mean achievement score was 64.63 with a standard deviation of 13.57 while for the females, the mean achievement scores and standard deviations were 62.04 and 13.90 respectively. This implies that males achieved higher than females considering their higher mean achievement scores at post-test. As a result of this observed difference in mean achievement scores, hypothesis 1 was tested at 0.05 level to determine if the observed difference was significant.

Research Question 2

What is the interaction effect of treatment and gender on students academic achievement of students in secondary school Social Studies?

Table 2: Mean and Standard Deviation Scores of Students Achievement Scores x Treatment and Gender.

Teaching Strategy	Gender	Post-Test		
		N	X	SD
Simulation Games (E1)	Male	31	72.90	12.35
	Female	32	68.75	11.38
Brainstorming (E2)	Male	25	63.99	10.19
	Female	32	65.19	15.17
Lecture Method (Control Group)	Male	30	57.00	12.72
	Female	30	51.33	7.79

The above table shows that males achieved more than the females in simulation (E1) and the control groups, while the female did better in brainstorming (E2). This is shown by the means scores of 72.90 (for E1), 57.00 (for C), while 63.99 (for E2) for males as against 68.75 (for E1), 65.19 (for E2) and 51.33 (for C) for the females. However to determine if these observed differences were significant, hypothesis 4 was tested at 0.05 level of probability.

Testing of Hypotheses

Hypothesis 1 H_{01} :

There is no significant main effect of gender on students academic achievement of students in secondary school Social Studies.

Table 3: Analysis of Covariance of Students' Achievement Scores x for Gender

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21648.093 ^a	2	10824.047	155.938	.000
Intercept	3445.594	1	3445.594	49.639	.000
PRE_TEST	21347.905	1	21347.905	307.551	.000
GENDER	38.910	1	38.910	.561	.455
Error	12286.018	177	69.413		
Total	754668.000	180			
Corrected Total	33934.111	179			

a: R squared = .638 (Adjusted R squared =.634)

The data presented on Table 3 shows that gender is not significant on students' achievement in Social Studies. This is revealed by the calculated $F(1,177) = 0.561, p = .455$ which is less more than 0.05. But the main effect of gender on pretest was significant ($F(1,177) = 307.551, p = 0.000$) and the effect was noticeable among female gender. This indicates that gender have no significant influence on the achievement of students. The null hypothesis of no significant difference was therefore accepted; that there is no significant difference in the influence of gender on achievement of students in Social Studies.

Hypothesis 2 Ho₂:

There is no significant interaction effect of treatment and gender on students academic achievement in secondary school Social Studies.

Table 4: Analysis of Covariance of Interaction Effects of Treatment and Gender on Students' Achievement in Social Studies

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9268.820 ^a	5	1853.764	13.077	.000
Intercept	712726.323	1	712726.323	5.028E3	.000
STRATEGIES * GENDER	9268.820	5	1853.764	13.077	.000
Error	24665.291	174	141.755		
Total	754668.000	180			
Corrected Total	33934.111	179			

a: R squared = .273 (Adjusted R squared =.252)

Table 4 however shows significant interaction effect of treatment and gender on students' academic achievement in Social Studies. Facts emerging from the table shows that there exist a significant interaction between treatment and gender on student academic achievement $F(5,174) = 13.077, p < 0.001$. Thus, the null hypothesis two was rejected and we upheld that there was significant interaction effect of treatment and gender on students' academic achievement in secondary school Social Studies.

The mean scores are displayed graphically (Fig.1) and it is evident that there is an interaction. The interaction was felt at E2 treatment level. This implies that students' gender is sensitive to the treatment this is why graphically, interaction did manifest. Fig1 shows interaction effect of treatment and gender on students' achievement in Social Studies.

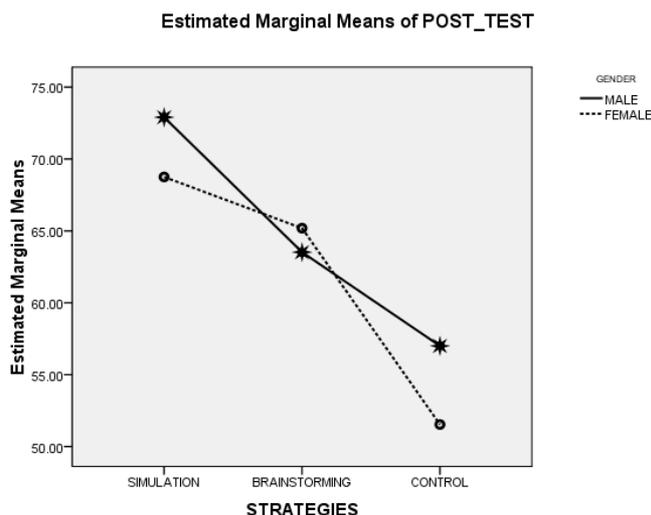


Fig. 1: Interaction Effects of Treatment and Gender on Students' Achievement in Social Studies

Discussion of Results

Based on the findings of the above results, female students in the experimental groups gained in achievement more than their male counterparts did. However, hypothesis testing revealed that this difference in the mean achievement scores of male and female students exposed to treatment is not significant. This finding is in conflict with those of Jegede and Iyang (1990), Okeke (1990), Osakwe (1991), Mordi (1992), Umeoduagu (1995), Njoku, 1997, Ogunkola (1997), Talabi, Emiola and Ogunsakin (2003), Mustafa, Khan, Fabunmi (2004), Adeyemi and Ajibade (2011) as well as Apata (2011). However, it corroborates the findings of Akinsola (2007), Nenty (2010), Awofala, Adeneye and Nneji (2011) and Amosun (2011), that there is no significant gender difference in the academic achievement of students when exposed to treatment.

The study also agrees with the assertions that gender difference may exist but a good method should be capable of neutralizing the difference (Akinsola (2007). Hence, in the pre-test there existed some gender difference between the sexes in both the experimental and control groups. The difference that existed within the experimental groups reduced drastically after treatment. Nevertheless, rather than reduce the difference, the control group that did not experience treatment, has increased gender difference. This finding implies that whether a student is male or female, gender does not make a difference in their academic achievement. The

study reveals as well that academic achievement gained by both male and female students in the experimental group surpassed that of their respective counterparts in the control group. This study therefore asserts that students academic achievement is not a function of gender.

The inconsistencies in the findings of studies reviewed, is an indication that the gender factor in achievement remains an issue requiring diversified attention. As Okonkwo (2012) noted, a clear understanding of gender differences in achievement may require investigating these differences across sub skills within a subject area rather than considering the overall achievement mean score in a subject and this will lead to a more useful educational recommendation. Furthermore, examining the different aspects of socio-cultural factors as they relate to gender issues may yield some positive results. This study however, supports that there is no superiority between male and female in terms of academic achievement in Social Studies.

Hypothesis two predicted that there would be no significant interaction effects of gender and treatment on students academic achievement in secondary school Social Studies. The findings revealed that there was a significant interaction effect of gender and treatment on students academic achievement in secondary school Social Studies. This finding is in agreement with Jegede and Iyang (1990), Mordi (1992), Chin- Tin (1993) and Fabunmi (2004) in terms of the interaction of gender and treatment on students academic achievement. This was because significant interaction effects existed between gender and treatment in terms of students academic achievement in secondary school Social Studies.

Conclusion

The results in this study provide empirical evidence that students academic achievement in secondary school Social Studies depend on the method of instruction adopted and are not influenced by gender. However, groups (treatment) did interact significantly with gender to influence students academic achievement in secondary school Social Studies. The study has shown that gender (male/female) had no significant effect on students achievement in Social Studies. It can therefore be concluded that gender of students whether male or female, does not seem to have any influence on the effectiveness of any of the treatment employed in the study. This is an indication that if both treatment/strategies are used effectively for male and female they are likely to produce the same result.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. All learners should be given equal opportunity and the same level of encouragement irrespective of their gender.
2. Learners should be thoroughly and deliberately motivated to engender higher level of achievement in Secondary School Social Studies and indeed in all subjects at that level of education irrespective of gender.
3. There should be no differentiation in the way male and female are taught. Equal treatment of male and female should be factored in Social Studies instructional curriculum and school policy formulation.

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