INFLUENCE OF GENDER STEREOTYPING ON ACADEMIC ACHIEVEMENT AMONG BIOLOGY SYUDENTS IN ANAMBRA STATE

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Abstract

The research is an investigation of the influence of gender stereotyping academic achievement in biology among students in Anambra State. The study was carried out in 2 out of the 6 education zones in the state namely: Nnewi and Onitsha, The population of the study was 17,550 SSII students in the 80 public schools in the 2 zones. Sample comprised 300 males and 300 females. The selection was by simple random sampling, equal number of students were selected from each school. Hence, 50 males and 50 females selected from each school. Five research question and one null hypothesis guided the study. The design for the study was survey. Instrument for data collection is a questionnaire with 40 items of 4 point Likert type. The instrument was validated by 2 experienced lecturers and the reliability was established using Cronbach Alpha. A reliability co-efficient of 0.81 was obtained. Data was analyzed using mean and standard deviation while the null hypothesis was tested using t-test. Findings show that gender stereotyping in biology has negative influence on students' achievement. Based on the findings, it is recommended that teachers should employ less gender sensitive approach in their teaching and parents should take responsibility of educating their children.

Introduction

Science can be defined as a body of knowledge. The word science comes from the Latin word 'scientia' meaning 'knowledge' that is knowledge about natural object, natural phenomena and their interrelationship (Boya, 2006). Science is also defined by Dina (2003), as an organized body of knowledge in form of concepts, laws, and theories and process of acquiring and refining the knowledge through the use of scientific methods. It is the foundation upon which the present technology breakthroughs was built. Okolo (2008) opined that science is the study of natural things around us which simply means the investigation of nature. Biology being a branch of science, involves the study of living things (Sarojini, 2001) because:

1). It helps scientific research and development of new tools and technique which invariably improves the quality of our lives.
2). Finding application in medicine, agriculture, veterinary science and horticulture.
3). Biotechnology unit that has applications in genetic engineering, hybridsm technology.
4). It deals with ecology problems like overpopulation, food shortage, erosion among other reasons. Biology as a subject is studied by both males and females, hence – gender.

The word 'gender' means the act of being a male or a female (Anyanwu, 2007). Stereotyping is a fixed idea or image that many people have of a particular type of person or thing but which is often not true in reality (Hornby, 2000). According to Dwayne (2005), stereotyping is a term used to define all people of a certain belief into a mostly negative category that may only reflect a selected few of the racial demographies. Gender stereotyping refers to the act of ascribing certain characteristics, factors, traits to a particular group of persons in order to describe their behaving roles, expectations and accomplishments Schneiden (2005), stated that gender stereotyping are culture specific, simplistic generalizations about gender differences and rules. He further explained that gender stereotyping can involve either positive or negative discriminations, but in both cases, it has a harmful effect and reduces the individual to one dimensional clichés.

Achievement on the other hand is a thing that one have done successfully, especially using one's goal, status or standard, by making effort for a long time (Hornby, 2000). According to Nwaeze (2003), achievement is what you have done of significance at work which has benefited your company or

organization. Achievement can also be defined as a thing somebody has done successfully using his/her own effort and skill.

Students' achievement in secondary school biology can be hindered due to gender stereotyping by the teachers attitude and behaviours. Anyanwu (2007), made it clear that the attitudes and behaviours of teachers tend to favour the male students more than their female counterparts. He also said that most teachers hold the belief that males are more competent and able than females. In conjunction with the cultural beliefs, teachers see females as weaker sex and more fragile both physically and socially than the males. This attitude is more pronounced in mixed schools where teachers assume that the girls are more or less escorts to their male counterparts, (Erinosho, 2000).

In a study by Salihu (2003), on three secondary schools in Nigeria, he found that teachers pay more attention on the male students on academic issues such as in teaching and assignments. Contrarily, the female students were usually being sent on minor errands to buy things or help to take care of teachers children. Thus, where as the boys were encouraged to face their studies more vigorously, the girls were a bit deprived. Such behaviours unconsciously limits the girls opinion for higher education and frustrates their professional ambitions. Anyanwu (2007), stated that most teachers hold the belief that males are more competent and able than females. In conjunction with the cultural beliefs, teachers see females as weaker sex and more fragile both physically and socially than their male counterparts. Poor teaching qualities of most of the teachers and the overall school administration coupled with the society's perception of women, helped in sustaining this problem of gender stereotyping in education and other professional pursuits (Sahihu, 2003). The observed discrepancies motivated the researchers to ascertain whether gender stereotyping affects students achievement in biology in secondary schools in Anambra State.

Purpose of the Study

The purpose of this study is to:

(1) examine the extent gender stereotyping influences students achievement in biology.
(2) ascertain factors contributing to gender stereotyping in secondary schools.
(3) ascertain the problems associated with gender stereotyping
(4) enumerate strategies to be adopted to solving the identified problems.

Research Questions

The following research questions guided the study.

(1) To what extent do gender stereotyping influence students achievement in biology.
(2) What factors contribute to gender stereotyping in secondary school?
(3) What are the problems associated with gender stereotyping?
(4) What strategies are to be adopted to solving the identified problems?

Null Hypothesis

$H0_1$ There is no statistically significant difference in the mean ratings of males and females on the influence of gender stereotyping on students achievement.

Research Method

The study adopted survey research design. It was carried out in Onitsha Nnewi education zones out of the six zones in Anambra State. 6 schools were selected from each of the 2 zones making a total of 12 schools. The target population was all the SS II students in public schools in the zones. 50 students were selected from each school. The sample population was therefore 600. The schools were selected in this order: 2 all male schools, 2 all female schools and 2 mixed schools – from each zone. Thus the total male was 300 while the total female was 300. Structured questionnaire was used to collect data and was formulated on a 4 point Likert scale item. The questionnaire was duly validated by 2 experienced lecturers from Nwafor Orizu College of Education, Nsugbe. The reliability was tested using Cronbach-alfa, through test-retest method done in 2 schools not selected for the study. A value of 0.81 was obtained which was considered high enough for the study. Data collected were analyzed using mean and standard deviation

with a mean score of 2.50 and above considered the acceptance level. t-test statistic was used to test the null hypothesis.

Results

The results obtained were presented in the table below:

Research Question One:

To what extent does gender stereotyping influence students achievement in biology?

Table 1: Mean and Standard Deviation of Students Response on the extent of Gender Stereotyping Influence Students Achievement in Biology

S/N	Item	Mean	SD	Decision
1	Studying biology leads to self independence.	3.66	0.74	Accept
2.	Discrimination by the teachers discourages me to perform well in biology	3.17	0.73	Accept
3.	I like biology because it helps me to solve many human problems in life.	2.84	1.00	Accept
4.	I offer biology just to satisfy my parents.	1.84	0.87	Reject
5.	I offer biology because of my teacher's advice.	3.02	1.04	Accept
6.	I offer biology because I want to know more about my body.	3.32	0.86	Accept
7.	I feel shy when ever my teacher is teaching reproduction.	2.07	0.74	Reject
8.	I offer biology because I am a female, I need to know more about my system.	3.30	1.07	Accept
9.	I offer biology because I am a male.	2.08	0.45	Reject
10.	Due to my biology teacher is a male. I feel uncomfortable whenever he is teaching us reproduction.	2.91	0.75	Accept
11.	Mixed school affect the study at biology	2.97	0.66	Accept
	Grand Mean	**2.84**	**0.81**	**Accept**

From table 1, all the items were accepted as factors influencing students performance due to gender stereotype in secondary school; except items 4, 7, and 9.

Research Question Two

What are the factors contributing to gender stereotyping in secondary schools?

Table 2: Factors Contributing to Gender Stereotyping in Secondary Schools.

S/N	Item	Mean	SD	Decision
12.	Teachers attitudes and behaviours	3.53	0.83	Accept
13.	Poor teaching qualities and administration.	3.53	0.83	Accept
14.	Improper guidance at the primary and secondary school level.	3,52	0.83	Accept
15.	Through government policy and school system	3.50	0.87	Accept
16.	Parental influences.	3.51	0.89	Accept
17.	The cultural perception or belief	3.51	0.89	Accept
18.	Economic consideration	3.51	0.89	Accept
19.	Social status of parents	3.60	0.71	Accept
20.	Badwagon effect.	3.54	0.80	Accept
21.	The horizontal segregation in education.	3.54	0.80	Accept
22.	Differences of attention given by teachers to male and females and their set expectations of each.	3.41	0.98	Accept
	Grand Mean	**3.52**	**0.85**	**Accept**

From table 2, all the items were accepted as the factors contributing to gender stereotyping in secondary schools.

Research Question Three

What are the problems associated with gender stereotyping?

Table 3: The Problems Associated with Gender Stereotyping.

S/N	Item Statement	Mean	SD	Decision
29.	Gender discrimination in the society.	2.51	0.99	Accept
30.	Withdrawal from social settings.	2.52	0.99	Accept
31.	Gender dysphoria	2.56	0.95	Accept
32.	Role confusion	2.52	0.99	Accept
33.	Isolation and violence	2.32	0.91	Reject
34.	Social injustice	2.32	0.92	Reject
35.	Inferiority complex/rejection	2.51	0.99	Accept

36.	Culture	2.50	0.93	Accept
	Grand mean	**2.47**	**0.96**	**Accept**

From table 3 above, items 29 – 32 and 35- 36 were accepted as the problems associated with gender stereotyping while items 3 and 34 were rejected.

Research Question Four

What are the strategies to be adopted to reduce gender stereotyping?

Table 4: The Strategies to Be Adopted to Reduce Gender Stereotyping.

S/N	Item Statement	Mean	SD	Decision
37..	Sex education	2.77	0.92	Accept
38.	Human right education	2.75	0.97	Accept
39.	Educating students on how stereotyping on biology can affect their future knowledge and studies.	2.58	1.39	Accept
40.	Gender role	2.49	0.92	Reject
	Grand Mean	**2.65**	**1.09**	**Accept**

From table 4, items 37 – 39 were accepted as the strategies to be adopted to reduce gender stereotyping while item 40 was rejected.

Null Hypothesis

H_0: There is no significant difference on mean ratings of boys and girls on the influence of gender stereotyping on students achievement.

Table 5: null hypothesis testing at 0.05 level of significance.

Table 5: z-test on the Mean Ratings of Boys and Girls on The Influence of Gender Stereotyping on Students Academic Achievement in Biology

	Mean	SD	N	Df	Std Error	Z-cal	Z-crit	Remark
Sample	2.63	0.915	600	598	2.96	2.46	1.96	S*
Population	2.5							

2.46 > 1.96 hence significant (S*)

Since the z-cal is greater than z-crit, we reject the null hypothesis and conclude that there is a significant difference on the mean ratings of boys and girls on the influence of gender stereotyping on students achievement.

Discussion

The result in table 1 revealed that gender stereotyping have great but negative influence on secondary schools students achievement in biology. The above finding contradicts the finding of Iloh (2011), which reported that gender stereotype has no influence on students achievement in biology but on the other hand it agrees with report of Nwafor (2009), which maintained that gender stereotyping affected

students performance in chemistry. Hence the researchers maintained that gender stereotyping is a significance issue to be addressed in other to enhance the academic achievement of secondary school students in biology.

The factors contributing to gender stereotyping in secondary schools was revealed by table II. This indicated that all the factors as identified on the table, contributed in no small measure to gender stereotyping in secondary schools. This is in consonance with the opinion of Salihu (2003), which pointed out poor teaching qualities on the part of the teachers, and the overall school administration coupled with the societal perception of women, all help in sustaining the problem of the gender stereotyping in our educational system.

Gender discrimination, withdrawal from social settings, gender dysphoria and inferiority complexes were identified as problems associated with gender stereotyping as outlined by table iv. Iloh (2011), opined that there is need for good teacher-students interaction during teaching and learning as well as equal attention to both sexes by the teacher. Nevertheless, if the problems are not properly taken care of, the resultant effect is poor academic achievement of senior secondary school students, especially in biology.

Based on the foregoing, table four(4) affirmed the recommendations of Salihu (2003), Anynwu (2007) and Iloh (2011); that the school teachers, school management, parents, and government at all levels have roles to play in addressing the problems. On this note the researchers maintained that intensive programme on sex education and human right education, if organized for secondary school students, will go along way in addressing the issue of gender stereotyping in our secondary schools. The null hypothesis indicated a significance difference in the mean rating of boys and girls on the influence of gender stereotyping on students achievement in biology, which is as agreed with the work of Ibe (2010).

Conclusion and Recommendation

Gender stereotyping is thus a significant issue in secondary schools in Anambra State and this stereotype is in favour of males as shown by the z-test. All hands should be on deck both in or outside the school in order to correct this anomaly that has affected our society. The following recommendations are therefore made:

1). As a result of the nature of biology, students should be encouraged to take biology studies seriously by exposing them to instructional approaches that will stimulate and retain their interest.
2). Teachers should be encouraged to be innovative in their teaching in order to carry everybody along with special attention to female students.
3). Parents are advised to take the responsibility of educating their children especially the females.
4). Government at all levels should not relent in their duties towards their citizens especially in secondary school.
5). Sex education, including gender roles should be included in the secondary school scheme of work.
6). The policy makers and curriculum planners should organize seminars and workshops for practicing biology teachers in order to train them on how best to moderate gender stereotyping in the school system.

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