GENDER BASED ANALYSIS OF STUDENTS PERFORMANCE IN NIGERIA CERTIFICATE IN EDUCATION (NCE) IN INTEGRATED SCIENCE

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Abstract

The study determined gender differences in the performance of Integrated Science Students in Kogi State College of Education Ankpa. From 2012-2015 academic sessions. The study is a correlational design and was guided by three research questions and one hypothesis. A total of 225 (141 females and 84 males) final year students who had completed the programme of study in Integrated science made up the population of the study. This population formed the purposive sample of the study. The instrument for data collection was the final academic board approved results of the college, mean scores and percentages were used to answer the research questions and Z-test was used to test the hypothesis. The findings of the study among others are; there is a significant difference in the grade mean scores of the female and male students which are 48.7 and 47.7 respectively which implies that gender gap in performance in integrated science is disappearing. This is source of hope for the country and the world in general where gender disparity in performance is prominent.

Keywords: *Gender, integrated science, performance Nigeria certificate in Education, Male, Female*

Introduction

Gender is the state of being a male or a female (with reference to social, physical, biological and cultural differences). There is gender disparity in education in general and science, Technology and Mathematics Education (STME) in particular this is no longer new in Nigeria and elsewhere in the world. In Nigeria, a number of studies Sesugh and Eriba, (2005), Abuh

(2005) and Nzewi (2009) in Afunape and Oludipe (2008) have noted a gulf between male and female participation and achievement in STME in favour of the males.

Similarly, Norwel and Hedges (2002) in Afunape and Oludipe (2008), Baltantine (2001) reported that gender differences in education have persisted in the United States despite several decades of intense scrutiny and policy changes.

In Nigeria gender bias is still very prevalent (Arigbabu and Maji ,2004). It is reported by Erinosho (2005) that gender issues have 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. This is a view to which Onyeizugbo (2003) has also alluded in pointing out that "sex roles are somewhat rigid in Nigeria. It is a common place to see gender stereo types manifested in the day-to-day life of an Average Nigerian.

Certain vocations and Professions (medicine, engineering and architecture) have traditional been regarded for male and others (nursing, catering, typing and arts) for female. Typically, parents call boys to wash cars, cut grass, fix incandescent lambs, or climbs ladders to fix or remove things.

On the other hand, works like washing dishes cooking, cleaning and so on are reserved for girls. In conclusion, what are regarded as complex and difficult tasks are allocated to male whereas female is expected to handle easy and less demanding tasks. An average Nigerian sees female as a "weaker sex" consequently child goes to school with these fixed stereotypes.

In chosen career, female and male are guided by this mindset that female are "weaker sex".It is not surprising that school, being a microcosm of society consciously or unconsciously perpetuates stereotypical behavior and indeed, teachers within the system exhibit gender bias in the classrooms (Arigbabu & Maji, 2004) for example it has been reported that teachers, consciously or unconsciously often findout differential treatment to boys and girls in their classrooms (Rubble and Martins, 2005 in Afunape and Oludipe, 2008) students on their part tend to have formed a stereotypical concept of mathematician and scientists when they regard as a special group. In such a concept female student (mothers of tomorrow) do not see themselves as having the potential to becomes mathematics and scientists (Arigbadu and Maji, 2004).

These are mixed reports on the research on gender difference in science. Many researchers have provided reports that there are no longer distinguishing differences in the cognitive, affective and psychomotor skill achievement of students on respect of gender

(Abayomi and Maji, 2004 in Afunape and Oludipe, 2008) others researchers have reported differently on this issue for example, in one study carried out by (Eriba and Sesugh, 2006) They found out that Males outperformed females in science and mathematics achievements.

Although a number of studies have been done on issues related to gender as well as the teaching and learning of science subjects (Biology, Chemistry and Physics); gender-based appraisal of student's performance in Colleges of education most especially in Integrated Science however, has not been given as much attention.

Integrated sciences are the grass root subject that introduce children into the field of science Khabele (2000) in Ogbona (2016) define Integrated Science as an approach to teaching of science in which concepts and principles are presented so as to express the fundamentals unity of scientific thoughts and avoid premature or undue stress on the distinctions between the various scientific fields. It thus provides sound based for reducing gender biases and misconceptions in the field of sciences. In this study we investigated gender differences in the performance of Integrated Science students in Kogi College of Education Ankpa between 2012 to 2015 academic session. The findings of this study will contribute valuable information to the study of knowledge related to gender and Integrated science.

Purpose of the study

The main purposes of this paper are to find out gender disparity in integrated science, specially, the study is intended to determine if difference exist in the performance of male and female students in Integrated Science in Kogi State College of Education, Ankpa (KSCOEA)

Research Questions

The following research questions were stated to guide the investigation.

    (i)   What are the mean scores of NCE Integrated science students between 2012 and 2015?

    (ii)   What are the mean scores of female and male Integrated Science students between 2012 and 2015?

    (iii)   What are the percentage pass of female and male students between 2012 and 2015?

Hypothesis

There is no significance difference in the performance of female and male Integrated Science students from 2012 to 2015.

Methodology

Final year approved results at the end of 3years National Certificate in Education (NCE) Programme were collected as the data for the study from 2012 to 2015. In all total of 225 Integrated Science results were analyzed 141 female and 84 males. The design of the study was correlational research design because the data used were obtained from exam and record of the college and was not subject to any manipulation.

Data Presentation and Analysis for 2012 to 2015 Academic session.

Table (1a): Percentage score, mean scores and standard deviation for female students in 2012 Academic Session.

38 Female students						
Grade	A	B	C	D	E	F
Number of grades	2	5	10	9	3	7
Percentage	5.6	13.9	27.8	25.0	8.3	19.4
Mean	47.9					
Standard deviation	13.37					

Table (1b): Percentage score, mean scores and standard deviation for male students in 2012 Academic Session.

22 Male students						
Grade	A	B	C	D	E	F
Number of grades	1	3	4	7	2	5
Percentage	4.6	13.6	18.8	31.8	9.1	22.7
Mean	45.8					
Standard deviation	14.25					

The result above revealed that the female students with the mean of 47.9 performed better than the male with the mean of 45.8 in 2012 academic session

Table (2a): Percentage score, mean scores and standard deviation for female students in 2013 Academic Session.

39 Female students						
Grade	A	B	C	D	E	F
Number of grades	1	6	11	10	5	6
Percentage	2.6	15.4	28.2	25.6	12.8	15.4

Mean	48.1
Standard deviation	14.13

Table (2b): Percentage score, mean scores and standard deviation for male students in 2013 Academic Session.

16 Male students						
Grade	A	B	C	D	E	F
Number of grades	-	3	5	3	1	4
Percentage	-	18.8	31.2	18.8	6.2	25.0
Mean		45.6				
Standard deviation		13.91				

The result above revealed that the female students with the mean of 48.1 performed better than the male with the mean of 45.6 in 2013 academic session, the difference in their mean in 2012 was 2.1 while the difference in their mean in 2013 was 2.5 hence positive increase in trend in performance of female students above the male students

Table (3a): Percentage score, mean scores and standard deviation for female students in 2014 Academic Session.

29 Female students						
Grade	A	B	C	D	E	F
Number of grades	1	4	7	8	4	5
Percentage	3.5	13.8	24.1	27.6	13.8	17.2
Mean		47.2				
Standard deviation		13.83				

Table (3b): Percentage score, mean scores and standard deviation for male students in 2014 Academic Session.

25 Male students						
Grade	A	B	C	D	E	F
Number of grades	1	4	4	8	3	5
Percentage	4.0	16.0	16.0	32.0	12.0	20.0
Mean		46.5				
Standard deviation		14.24				

The result above revealed that the female students with the mean of 47.2 performed better than the male with the mean of 46.5 in 2014 academic session, the difference in their mean in 2014 was 0.6 while the difference in their mean in 2013 was 2.5 and 2.1 in 2012, the result shows that the performance of male increase in 2014 compare to 2013 and 2012 when compare to the female students

Table (4a): Percentage score, mean scores and standard deviation for female students in 2015 Academic Session.

37 Female students						
Grade	A	B	C	D	E	F
Number of grades	1	8	8	7	6	7
Percentage	2.7	21.6	21.6	18.9	16.2	18.9
Mean		47.5				
Standard deviation		14.71				

Table (4b): Percentage score, mean scores and standard deviation for male students in 2015 Academic Session.

21 Male students						
Grade	A	B	C	D	E	F
Number of grades	-	4	6	6	2	3
Percentage	-	19.0	28.6	28.6	9.5	14.3
Mean		48.2				
Standard deviation		14.32				

The result above revealed that the male students with the mean of 48.2 performed better than the female with the mean of 47.5 in 2015 academic session, the difference in their mean in 2015 was 0.7and that was the only year the male students performed better than the female students from the four consecutive years considered in this work.

Table (5a): Percentage score, mean scores and standard deviation for female students from 2012 to 2015 Academic Session.

141 Female students						
Grade	A	B	C	D	E	F
Number of grades	5	23	36	34	18	25
Percentage	3.6	16.3	25.5	24.1	12.8	17.7

Mean	48.7
Standard deviation	14.36

Table (5b): Percentage score mean score and for standard deviation for male students from 2012 to 2015 academic session

84 Male students

Grade	A	B	C	D	E	F
Number of grades	2	14	19	24	8	17
Percentage	2.4	16.7	22.6	28.6	9.5	20.2
Mean		47.7				
Standard deviation		14.23				

Table 6: Z - test for female and male students from 2012 to 2015 academic session.

Gender	Mean	S.D	Number	Df	Z-cet	Z- tab
Female	48.7	14.36	141	223	2.0	1.6
Male	47.7	14.23	84			

At $\alpha = 0.05$

Discussion

In this study we investigated gender differences in performance in integrated science NCE final approved result for over 3 years. Results indicated that female students had a higher percentage in grade A, C and E while Male had a higher percentage in grade B, D and F. The overall mean score of females is higher than male. It is deduced from the analysis that female students performed better than the male students during this period under study. The study also revealed that there is a significant difference performance of female and male students in Integrated Science between 2012 to 2015 academic session in Kogi State College of Education Ankpa. The result obtained in this study is completely opposite that of Eriba and Sesugh (2006) they found that male outperformed female in science and mathematics. The result obtained mindset of Nigerian that if a female student is given a chance to study some demanding courses, they may perform better than the male, also from the result obtained in this study there is hope that in Nigeria the gender gap in integrated science performance is disappearing. More pleasing is the fact that female students we no longer be seen as "weak" in performance in science.

Recommendations

1 Female should be giving equal job and educational opportunity for easy address of emerging challenges

2 There are should be advocacy on reduction of gender sensitivity in Nigeria

3 Female should equally be fixed in different parastatals where problems are to be solved. Expercially e.g security and economic sector

Conclusion

The study has taken a crucial analysis of students' performance in integrated science based on gender in Kogi State College of Education Ankpa. The result revealed that the female students performed better than the male students. The mean score of the female is higher than the male that implies that the gender gap in performance in integrated science in Colleges of Education in Nigeria is disappearing.

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