Gender Streaming and Secondary School Female Students' Performance in English Language in Niger State, Nigeria

Dr. U. I. Gwarjiko
Full Time Commissioner, Niger State Secondary Education Board, Minna, Niger State, Nigeria

Abstract:
This study investigated the effect of gender streaming on the performance of senior secondary school level students in English language in Niger State. In the course of the work, the researcher compared the performance of female students in the single and mixed-gender streams in English Language. The population of the study was 53,468 from 248 schools of both single and mixed gender streams. Out of this, one single-gender female class of forty-seven and one mixed-gender class of eleven female students were sampled from senior secondary schools in Minna metropolis. The researcher used quasi-experimental research design. The instruments used for data collection were the NECO 2011 November/December past question papers that served as the test instruments, the curriculum content and prepared lesson notes used during treatment. Frequency counts and the Arithmetic means were used for descriptive analysis. The t-test statistical technique was used for inferential analysis to test the hypotheses. This study is anchored on Bandura (1986)'s social learning theory since it emphasises the importance of biological, social and cultural impacts on human behavioural development and learning especially on gender and genders specific traits and roles. The results revealed that there was a significant difference between the performance of single and mixed-gender female students in post test. Equally too, the single-gendered female students performed better than the mixed-gender female ones and the results of the single-gender female students were generally encouraging while that of mixed gender female students was very poor. It was therefore, concluded that the single-gender streaming was effective in enhancing better academic performance for female students especially in English language in Niger State. Consequently, the researcher recommends that the Niger State Government encourages the single-gender stream system through a vibrant, viable and feasible policy with workable implementation strategy.

Keywords: Single-gender streaming, placement, single-gender male students, single-gender male students and English language

1. Introduction

Students' poor performance in Senior Secondary Certificate Examination (SSCE) conducted by both the West African Examination Council (WAEC) and the National Examination Council (NECO) (Eze, 2011) is really disturbing especially that educationists now emphasis much on educational accountability. It is worthwhile to reiterate on the role and function of English language in Nigeria as that which warrants concern when students performance in it is poor. English language is used as the medium of instruction and in learning other subjects in all Nigerian educational institutions. Equally too, no student is qualified for admission into the Nigerian universities and other tertiary institutions without scoring a credit pass in it in addition to other four subjects in the Senior Secondary Certificate Examination (SSCE) conducted by the West African Examination Council (WAEC) and the National Examination Council (NECO). One other serious issue worthy of note at this point of discourse is that, in Nigeria today, during the placement of students into either schools or classrooms to enhance better performance, the factors mostly considered are ability, aptitude, occupation or trade or career choice, science or arts inclination but always at the exclusion of gender streaming factor. Where and when gender comes to mind, it is an haphazard exercise. It is neither based on policy guideline or research report nor bearing jn mind academic performance benefit but on grounds of morality or religious injunctions or obligations.

Secondly, this study was motivated by issues related to gender equity in education especially in northern Nigeria despite several declarations and provision of legislative tools and other support by powerful international bodies such as UNICEF, World Bank, UNESCO etcetera on this issue. These include the inequity between female and male educational opportunities, low level of enrollment, alarming withdrawal rate resulting in low completion rate, poor or lack of attention and support for the girl-child education, unequal attention given to males and females students especially in coeducational classrooms among others. In addition, the assertion that females have better aptitude and competence in learning language than their male counterparts and the availability of controversial and inconsistency of results of studies on the academic performance of both female and male students' performance when they are streamed according to gender is academically challenging to have prompted this study. Positive study results on gender

streaming include those by Lee and Lockheed (1990); Mallam (1996), Kurumeh' M. S, Igyu' C. O, and Mohammed A. S, (2013); Bosire, J. Mondoh H. and Barmao, A. (2008); Sax, (2007) etc and unfavorable study results includethose of Rowe (1988); Oludipe (2012); Kang'ahi, (2012); Pahlke, E., Hyde, J. S. Allison, C. M. (2014) etc.

Therefore, this study investigated the impact of gender streaming on female students' performance in English language at the senior secondary school level in Niger State. The finding is aimed at curbing the high rate of students' failure in English language in West Africa Examination Council (WAEC) and National Examination Council (NECO) Senior Secondary Certificate Examinations in Niger State, Nigeria when implemented.

1.1. Objectives of the Study
This study was designed to find out the
- i. impact of gender streaming on the academic performance of female students in mixed and single streams in English language in senior secondary schools in Niger state
- ii. The gender stream that performs better in academic performance in English language in senior secondary schools in Niger state.

1.2. Research Questions
In the course of this study, the research sought answers to the following question:
- i. What is the academic performance of female students in single-gender and mixed gender streams in English Language at the senior secondary school level in Niger state?
- ii. Which streaming type performs better in English Language at the senior secondary school level in Niger state?

1.3. Research Hypothesis
The following hypothesis was formulated to guide this study:
There is no significant difference between the academic performance of female students in single and mixed gender streams in English Language at the senior secondary school level in Niger State.

2. Review of the Related Literature
There are propositions that males and females vary in their   cognitive abilities in language (Amin, 2006; Sax, 2007; Burman et. al. 2008; Gomez, 2011; Hodgins, 2012 ecetera). Hence, the justification to separate them in the course of instruction. This position was challenged as not impacting enough to result into any significant difference in the performance of the genders (Rowe, 1988;, Haker and Nash, 1997; Lee & Lockheed, 1990 and Pahlke, Hyde and Allison, 2014).

The Gender and Education Association (GEA) (2012) observed that certain subjects are gender stereotyped, for example, males believed to be better in mathematics, sciences and engineering and are therefore, masculine subjects and females believed to be better than males in language arts etc. and therefore a feminine subject. So also, the National Council of Teachers of English (NCTE, 1995) observed that there was serious gender inequity in the instructional materials aspect of curriculum and instruction when even the number of female characters in literature books was discovered to be fewer than that of males and that both male and female characters displayed traits which are gender stereotypical. These observations by (GEA) and (NCTE, 1995) were made to make a case for single gender education or streaming.

A number of empirical studies were conducted on both single and mixed gender streaming to ascertain the efficacy of each in the contemporary educational practices. NASSPE (2011) reported a study by the National Foundation for Educational Research commissioned in England to study the effect of school size and type (single-sex vs. coed) on academic performance. The Foundation studied 369,341 students from 2,954 public high schools throughout England. The study revealed that, even after controlling for students' academic ability and other background factors, a significant difference was reported in the performes of the two stream types and females in single gender school did significantly better than those in mixed gender schools in all subjects.

In Manchester University in England, researchers used *before and after* approach to investigate the effectiveness of single and mixed gender streaming systems in enhancing students' academic achievement. They assigned students at five public schools either to single-sex or to coed classrooms randomly. The result showed a significant difference in the performances of the two streams. The result also indicates that 89 percent assigned to single-sex classes passed the test against 48 percent of girls assigned to coed classes (Henry Juliet, in NASSPE, 2011).Carol (20006) investigated the effects of single-sex and mixed-sex classes on the academic achievement of middle school students at Stonewall Jackson Middle School in Charleston, West Virginia cutting across the students' sex, minority status, socio-economic status, and special education status using a sample of 279 students. The result revealed a significant difference in the performances of the two streams. The results of the study reveal that the use of single-sex classes significantly improved student achievement in reading/language arts and math with greater advantage for single gender classes for females.

Bosire et al. (2008) report the result of their study on the effect of streaming students by gender in Mathematics achievement using 1,489 candidates in four secondary schools in Nakuru District, Kenya. The result shows a significant difference in the performances of the two female streams. The result indicates that female students in the normal mixed-sex school scored significantly higher than those in single gender schools. This result indicates that girls taught in mixed-class scored higher than those taught in single-gender stream class environment. Pahlke et al. (2014) did a study on the effects of single-sex compared with co-educational schooling on students' performance and attitudes. In doing so they did a meta-analysis of the results of studies undertaken and published from 1968 to 2013.

The results did not reveal significant evidence to show any difference in the performance between girls in single-sex or coeducational schools/classrooms.

On the other hand, Lee and Lockheed (1990) studied the influence of gender stream on students' performance in Nigeria in mathematics using for 1,012 ninth grade students and found no significance in a gender gap. However, they found that girls in single-sex schools outperformed girls in co-educational schools. Rowe (1988) sampled 398 Australian middle-school students' scores to determine if the single gender stream can improved performance in mathematics. The result revealed no significant difference between the single gender streams/classes and the coeducational ones. Gilson (1999) examined the effects of single-sex classes on girls' performance and attitudes toward math by comparing single sex and co-educational math classes in private middle schools in the United States and found no significant difference in their performances.

The majority of reviewed literature above have indicated the positive aspect of single gender streaming of female students. For the fact that there are still a few whose results are on the contrary means that some inconsistency still results; and this inconsistency justifies further studies of this type in this field of educational endeavor.

3. Methodology

In this study, quasi-experimental research design (Bichi 2004) was used. The population in this study was 53,468 senior secondary 3 (SS3) students of 2013/14 academic session from 248 senior secondary schools (SSS) spread across Niger State. Two classes of 47 single gender females and 11 mixed gender female students were sampled in Minna metropolis using simple balloting method. The instruments used for data collection were the curriculum content culled from the National Curriculum, prepared lesson notes of the lessons taught during treatment by the research assistant, the November/December past question paper of National Examination Council (NECO) 2011 Senior Secondary Certificate Examination (SSCE) used for pretest and posttest.

The Niger State Secondary Education Board's schools used for the study were personally visited by the researcher. First, a pretest was administered and treatment of the respondents for 8 weeks followed in their existing condition. The used single and mixed classrooms were taught by the research assistant using the same textbooks, curriculum content, lesson notes and tested at the same time using the same instrument for both pretest and posttest for all students. At the end of the treatment, a posttest was administered and the scores served as the data.

Frequency counts, simple percentile and statistical means were used in answering the research questions and t-test was used to test the hypothesis to determine if the difference between the means of the paired sample variables were significant or not. All data was analysed by using the Statistical Package for Social Science (SPSS) computer program. An alpha level of .05 was set as the criterion for the level of significance.

4. Summary and Analyses of Results; and Discussion of Major Findings

The research investigated the impact of single-gender streaming on senior secondary school students' performance in English Language in Niger State. In the course of the study, two research questions were asked and answered; and one hypotheses was formulated and tested. The results are summarized and discussed below.

Research Hypothesis: The academic performance of female students in the single and mixed gender streams in English Language is not significantly different at the senior secondary school level in Niger State.

Table 1 below contains the mean scores and t-test values of single gender stream female students (SGSFS) and mixed gender stream female students (MGSFS) in both pre-test and post-test in English Language at the senior secondary school level in Niger state.

Test Type	Stream Type	N	Mean (x)	SD	Calculated t	df	Critical t
	SGSFS	47	16.00	6.92			
Pre-test					1.01	56	2.00
	MGSFS	11	13.20	9.20			
	SGSFS	47	23.80	5.63			
Post-test					4.20*	56	2.00
	MGSFS	11	12.30	8.73			

Table 1: Mean (x) and t-test Scores for Single Gender Stream Female Students (SGSFS) and Mixed Gender Stream Female Students (MGSFS) in Pre-test and Post-test
* Significant

The results in table 1 show that the mean scores of 16.00 with standard deviation 6.92 and 13.20 with standard deviation of 9.20 resulted in 1.01 in their unpaired t-test calculation for single and mixed gender stream female students. The critical value of t at 2.00 with 56 degree of freedom has indicated that the difference between the single gender stream female students (SGSFS) and mixed gender stream female students (MGSFS) in their pretest was not significant. Whereas, the unpaired t-test calculation of mean scores of 23.80 with 5.63 standard deviation and 12.30 with 8.73 standard deviation resulted in 4.20 forsingle and mixed gender stream female students.

The 2.00 critical value of t at 56 degree of freedom has indicated that the difference between the academic performance of single gender stream female students (SGSFS) and mixed gender stream female students (MGSFS) was significant at .05 level, which consequently, rejects the hypothesis. Thus, results of pre-test and post-test are inconsistent.

The major finding is that, the impact of gender streaming did not result in a significant difference between the academic performance of single gender stream female students (SGSFS) and mixed gender stream female students (SGSFS) in English Language at the senior secondary school level in Niger state in the pretest. This finding is in consonance with previous findings of Gilson (1999) ; Pahlke et. al. (2014) and Lee and Lockheed (1990) who reported no significant difference in their studies of single and mixed-gender stream female stuents. Some previous findings which are not in consonance with the findings of this study are those of Dianne (1998), Henry (2001), (ACER 2002); Carol (2006) Bosire et. al. (2008) and NASSPE (2011); who found significant difference in performance between females in single and mixed gender streams.

On the other hand, gender streaming has significantly impacted on the academic performances of single and mixed gender streams female students in English Language at the senior secondary school level in Nigerstate in the postest. This difference between the pretest and post-test might be attributable to the treatment given to the groups after the pretest. The result also indicates that the single gender female students performed better than the mixed gender stream female students. Consequently, the hypothesis was rejected.

Some previous findings which are in consonance with the findings of this study are those of Dianne (1998), Henry (2001), (ACER 2002); Carol (2006) Bosire et. al. (2008) and NASSPE (2011); who found significant difference in performance between females in single and mixed gender streams.This finding is not in agreement with previous findings of Lee and Lockheed (1990); Mallam (1993); Gilson (1999) and Pahlke et. al. (2014) who reported no significant difference in their studies of single and mixed-gender stream female stuents.

The finding above on performance differences between single and mixed-gender stream female studentsin the posttest have been justified by Harvey (2011), Dweck et al. (1983) who asserted that gender difference impact on learning due to differences in terms of reinforcement strategies, sociocultural environmental variables and gender learning due differences in male and female genders. The reported result above was also justified by the conceptual propositions on gender difference on language acquisition,(Hodgins, 2008 and Gomez 2011) and brain structural, developmental process and functional differences (Lenroot et al.2007;Burman et al., 2008; Amin, 2006 and Sax in NASSSPE, 2011). Equally too, Bosire et al. (2008) & Williams (2011) have justified this finding on gender differences in brain hemispherism which makes males to be better in sciences and engineering than females, better in language (Arts) and music, Witkin (1979)'s gender differences on the dimension of learning and Cook (2011)'s revelation a dynamic and diversifying cognitive and learning style ability due to gender difference and Gelwick in Kolb (1984), Sabine et al. (1994) and Kolb (1976) indicationsthat that women tended to have concrete learning styles whereas men have abstract style. Equally too, the result was in agreement with the propositions that males and females vary in their cognitive abilities in language, (Burman). et al., 2008; Amin, 2006; Hodgins, 2012; Gomez,2011), hence the need to separate them in the course of instruction.

It is clear and obvious from the discourse above that the female students in mixed gender stream are disadvantaged. Hence, the need to provide viable single gender stream environment for female students in senior secondary schools in Niger State, Nigeria. It is believed that this will bring down the high rate of students' poor performance in their secondary school certificate examinations.

6. Conclusions
From the findings of this sudy the following conclusion can be drawn:
  i.   A significant difference was found between the performance of female students in single and mixed gender streams,
  ii. In view of the fact that the single gender stream female students did very well and the mixed gender stream ones performed poorly means that the single gender streaming system proves to be more effective in attaining better academic performance for female students.
  iii. Since the single gender did better than the mixed gender stream females, we can conclude also that single-gender streaming system is a more favourable academic environment for female students than the mixed gender environment..

7. Recommendations
Based on the findings of this study, it is re commended that the Niger State Government should:
  i.   Evolve a deliberate policy to introduce single gender education.
  ii. Implement gradually the single gender education programme in the state with every sincerity and dedication, based on deliberate and feasible policy on its planning and implementation.
  iii. Train teachers specially for single gender education particularly if it is to be adopted. In so doing, teachers should be equipped with the knowledge and pedagogical skills to work with both boys and girls under differing learning styles, conditions and environment.
  iv. Deemphasise the use of mixed gender stream environment to deliver instruction because it has proved less effective.

8. References
  i.   Amin, P. (2006). Male/female brain differences. Medical Education Online
  ii. Bandura, A. (1986). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84,191– 215.
  iii. Bichi, M. Y. (2004). Introduction to research and statistics. Debis-co Press and Publishing Company, Kano.
  iv. Bosire, J. Mondoh H. and Barmao, A. (2008).Effect of streaming by gender on students' achievement in Mathematics in Secondary Schools in Kenya. South African Journal of Education 28:595-607.
  v.   Burman D.D. Tali B. and James R.B. (2008). Sex differences in neural processing of language among children. Journal of Neuropsychologia. 46(5): 1349–1362. Retrieved March 8, 2012 from www.ncbi.nlm.nih.gov/pmc/articles/PMC2478638.

vi.   Carol, E. T. (2006). A Comparison of the effect of single-sex versus mixed-Sex Classes on middle school students' achievement. Unpublished Ph. D. Dissertation, University Graduate

vii.   ColleCollege, Huntington, West Virginia.

viii.   Eze, S. (2011). Nigeria: failure at SSCE - the way out Leadership (Abuja) 8 January, 2011.

ix.   Federal Ministry of Education (2010). National curriculum: National Education Research and Development Council (NERDC) Press.

x.   Gender and Education Association (GEA) (2012). Curriculum. Retrieved December, 1,2012   from www2.aau.org/wghe/gender/toolkit/Toolkit-module4.pdf.

xi.   Gilson, J.E. (1999). Single-Gender Education versus Coeducation for Girls: A Study of Mathematics Achievement and Attitudes toward Mathematics of Middle-School Students,

xii.   Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec.

xiii.   Harker, R., and Nash, R. (1997). School type and the education of girls: co-ed orgirls only? Paper delivered at the American Educational Research Association annual meeting. Chicago.

xiv.   Hodgins D. ((2011). How about those boys? In: Oakland County Speech Language Hearing Association. Retrieved September, 10, 2011 from www.ocslha.com/danhodgins.htm. 14.National Association of Single Sex Public Education (NASSPE) (2011 (2). The advantages of single sex education for boys. Retrieved August 28, 2011 from www.singlesexschools.org/evidence/html.National Council of Teachers of English (NCTE), (1995). Gender and language curriculum.

xv.   National Examinations Council (NECO) 2011 May/June English Language examination marking. scheme.

xvi.   Kurumeh', M. S, Igyu' C. O, and Mohammed' A. S, (2013). Influence of school type on the achievement of secondary school students in mathematics and science in Makurdi Local Government Area of Benue State, Nigeria. Prime Research on Education 3(1) 408- 412.Retrieved June, 10, 2013 from www.primejournal.org/PRE.

xvii.   Lee, V. E. and Lockheed, M. M. (1990). The effects of single-gender schooling on achievement and attitudes in Nigeria. Retrieved July, 10, 2011 from econpapers.repec.org/paper/wbkwbrwps/206.htm Comparative Educational Review, 34(2), 209-231. EJ 412 239.

xviii.   Mallam, W. A. (1993). Impact of school-type and sex of the teacher on female students' attitudes toward Mathematics in Nigerian secondary schools. Educational Studies in Mathematics, 24(2), 223-229.

xix.   National Association for Single Sex Public Education VII (2011). Functional sex differences in the human brain. Retrieved August 28, 2011 from www.singlesexschools.org/evidence/html.

xx.   National Council of Teachers of English (NCTE), (1995). Gender and language curriculum

xxi.   National Examinations Council (NECO) 2011 May/June English Language examination question paper.

xxii.   Pahlke, E., Hyde, J. S. Allison, C. M. (2014). The Effects of Single-Sex Compared With Coeducational Schooling on Students' Performance and Attitudes: A Meta-Analysis. Psychological Bulletin, DOI: 10.1037/a0035740

xxiii.   Rowe, K. J. (1988). Single-gender and mixed-gender classes: The effects of class type on students' achievement, confidence and participation in mathematics. Australian Journal of Education, 32, 180-202.

xxiv.   Sax, L., M.D. (2007). Single-gender education: Ready for prime time? World & I.: 257-269.