



COMPARATIVE EVALUATION OF THE ACADEMIC PERFORMANCE OF SINGLE SEX AND CO-EDUCATIONAL SECONDARY SCHOOL STUDENTS IN IBADAN, SOUTH WEST NIGERIA

DAUDA ADEREMI BUSARI

*Department of Sociology
University of Ibadan
daudabusari@yahoo.com*

ABSTRACT

This study compared the performance levels of students of single-sex schools against co-educational schools at the end of the third year of senior secondary education in Ibadan, South West Nigeria. Three hypotheses were tested using primary data gathered from Multilevel analysis which was carried out on a sample of approximately 300 secondary school students divided into 150 for single sex schools and 150 for co-educational schools, and secondary data from the West African school Certificate examination for the selected schools for year 2008 and 2009.. The results indicate that there is a significant difference between the academic performances of the students of co-educational schools and single sex schools, with the students in the single-sex secondary schools performing better than their counterparts in co-educational schools. Results were however not significantly different for gender-based evaluation of academic performances of the schooling types. The study therefore recommends that students irrespective of the schooling types in which they might find themselves be given equal opportunities and encouraged to attain excellence.

INTRODUCTION

Single-sex education has a long history as a common practice in many countries around the world. In traditional African systems, informal education especially in the adolescent years separated girls, on the basis of the need to develop house-keeping and child-raising skill-sets from boys, resulting in differential acquisition of knowledge, skills and values on the basis of gender (Watson, Quatman & Edler (2002). Conversely, co-education which even in traditional societies formed a crucial part of the learning process especially in the child's formative years allows for equal exposure to the same realities, however with each individual learning differently than the other based on cognitive differences (Monday, 2001), and ultimately with implications for self-confidence levels, attitudes, risk-taking abilities and intellectual dexterity (Fawe, 1998; Changeiywo, 2000; Barmao, 2006; Sirigi, 2000).

The adoption of both models into the formal education system has sparked debates on the success levels attained and courses charted by the models. Igbojinwaekwu (2004) opined that Co-educational schools are better than single-sex schools in different ways such as cross-fertilization or exchange of ideas; healthy competition between boys and girls; equal opportunities for sexes in the same environmental condition; respect for the opposite sex; proper fitting into the university system, whilst on the other hand, Okonkwo (2001) asserted that unwanted pregnancies was a risk run by parents whose children attended Co-educational schools. A comparison of academic performances of students in both setups, which is the crux of this work, has however drawn largely on arguments regarding focus of students and teaching-methods among the pro-single-sex schools with claims that girls in single-sex schools were more focused than their counterparts in co-educational schools who were likely to be distracted by the presence of boys, and that teaching-learning approaches used in co-



educational schools were targeted directly at the perceived needs of boys to the detriment of the female students, an approach which negated the assertions on differential instructional techniques for sexes (National Association for Single Sex Public Education, 2006. Retrieved 2007). Studies in Europe and America have indicated that single sex schools tend to perform better than Co-educational schools (London Financial Times, 2007). In addition, Myra and David (2001) concluded that girls stay confident and learn more in single-sex schools because they are players and not the audience, with Mushaq (2007) asserting that single sex education system is ideal since boys and girls require separate training to suit their different rates of physical, intellectual and emotional growth. On the other hand, those in support of co-educational schools have argued that the presence of the opposite sex served as catalyst to propel sexes for higher academic achievements (Salisbury & Jackson, 1996; Sukhnandan, Lee & Kelleher, 2000). To further substantiate these claims, Lavy and Schlosser (2011) obtained results which suggest that an increase in the proportion of girls gives rise to improved student outcomes for boys and girls.

In the current policy context, both in the UK and in other Anglophone countries, there has been a revival of interest in single-sex groupings within co-educational schools, largely driven by the moral panic about boys' 'underperformance' compared to girls in terms of academic attainment (Marsh, Owens, Myers, & Smith, 1989; Warrington and Younger 2003; Younger and Warrington 2006,). There is an interesting tension between the perception that girls and girl-friendly pedagogy are holding boys back, and therefore boys would be better off being taught separately, and the familiar view that girls are a 'civilizing influence' to be exploited for the benefit of the boys (Iverson & Murphy 2007). At the same time, girls' schools continue to be relatively popular with parents, while boys' schools are struggling to survive in the quasi-market within the state system, and many boys' schools within the private sector are going mixed. Some studies indicate that girls in schools with single-sex programs achieve higher learning, display more self-confidence and leadership skills, and enter male-dominated fields at a higher rate (Ferrara, 2005; Smyth, 2010). Studies have also shown that girls in single-sex classes are actually more likely to act outside of traditional gender roles. Boys might also feel freer to engage in pursuits they may not have considered at a co-educational school. When girls are around, they are the ones expected to take part in such "non-macho pursuits". But when the girls are not in the school, boys may perceive that it is acceptable to fill those "feminine" roles. Single-sex schools would therefore allow some boys to transcend the gender roles that are typically assigned to them. Single-sex schools have a higher percentage of graduates who attended four-year colleges and a lower percentage of graduates who attended two-year junior colleges than co-educational schools. The positive effects of single-sex schools remain substantial, even after taking into account various school-level variables such as teacher quality, the student-teacher ratio, the proportion of students receiving lunch support, and whether the schools are public or private (Park, Behrman & Choi, 2012).

Over the years, investigations of the factors that influence academic performance of students have attracted the interest of teachers, counsellors, psychologists, researchers and school administrators in Nigeria. (Wiseman, 1973; Sogbetun, 1981) and this is because of public outcry concerning the low standard of education in the country (Imoge, 2002). The declining quality of education in the country and the breeding of graduates with little technical knowledge have resulted in serious setbacks to manpower and development of the nation. Tracing this significant decline in the quality of education and the increase in poorly bred graduates to secondary education, Mulford (2002) wrote that poor results at secondary school level have two consequences; for one, those who do not proceed to tertiary education tend to be less productive and contribute little to the development of the economy and social life. Secondly, those who may proceed to tertiary education have not gained the relevant skills as appropriate to the contemporary world. Whilst this issue of decreasing academic performance



has been evident in the Nigerian secondary education sector for some time, different ideas about how to solve these problems have been advanced; Wiseman (1993), Salami and Alawode (2010) examined the causes of poor academic performance among secondary school students, and identified factors such as: intellectual ability, poor study habits, achievement motivation, lack of vocational goals, low socio-economic status of the family, poor family structure and anxiety. As further observed by Ajila & Olutola (2000), there is an awareness of the importance of the home environment or family on students' academic performance. This is because the family background of a child affects his reaction to life situation and his level of performance. However, these research works failed to look critically at the academic system itself. Research in countries such as Australia, Canada, New Zealand, Ireland, USA, and the UK have resulted in very little evidence related to consistent advantages or disadvantages of either single-sex education or co-educational either (Smithers & Robinson, 2006). Currently, hundreds of studies have been focused on single-sex education; however, there is still "insufficient sound empirical evidence concerning the consequences of single-sex versus co-educational schooling" (Bigler & Signorella, 2011, p. 663).

METHODOLOGY

The study employed a non-experimental research design which was cross-sectional in its time dimension, and descriptive in purpose, whilst employing the use of survey method. This method was employed to effectively address the aim of the study, which is to check for the differences in the academic performance of students in single sex and co-educational secondary schools. The target population for the study included all secondary school students in Ibadan in single sex and co-educational schools. However, due to the large population of single sex and co-educational secondary school students, only selected students from six secondary schools four single sex (boys and girls) and two co-educational schools were sampled for the study. Stratified and simple random sampling methods were employed in selecting six (6) secondary schools in Ibadan namely: Ibadan Boys High School, St. Patrick's Grammar School, St. Louis Grammar School, Isabatudeen Girl's Grammar School, Abadina College and Immanuel College High School. In each school, final year Senior Secondary School (SSS3) class was purposively selected for the survey. In each school, 50 students (irrespective of class placement into arts, commercial or science) were randomly selected to arrive at a total of three hundred (300) students, sampled for the study. The study employed the use of both primary and secondary data. The type of data collected from primary sources include: information on the students' socio- demographic data, data on gender role and performance, and data on the perception of the students towards school type. Similarly, secondary data (WAEC result) was also used. The researcher personally went to WAEC office to request for the analysis of the WAEC results of the study-participant. The participants involved in the study were properly informed and the purpose of the study was well explained to them. They were assured of the confidential nature of the study. The participant's scores were sorted into male and female, single sex and co-educational groups based on the analysis of result collected from the WAEC office.

The study area, Ibadan, is located in south-western Nigeria. It is the capital of Oyo State, and is reputed to be the largest indigenous city in Africa, south of the Sahara. Ibadan had been the centre of administration of the old Western Region, Nigeria since the days of the British colonial rule. The city is situated 78 miles inland from Lagos, and is a prominent transit point between the coastal region and the areas to the north. Parts of the city's ancient protective walls



still stand till today, and its population is estimated to be about 3,800,000 according to 2006 census estimates.

Data Presentation and Analysis

In this section, research findings are systematically presented and analysed using appropriate statistical techniques on the effects of single sex and co-educational secondary schooling on students' academic performance. Data sets obtained from the administered questionnaire as well as WAEC result of students were analysed using tables, while simple percentages, cross tabulations and charts were used to present the results. Also discussed herein are the implications of the research findings on the observed results; suggestions and recommendations were thus made based on the problems observed in the study. Three hypotheses were formulated and tested using independent sample test (t-test) proposed at 0.05 level of significance.

The socio-demographic analysis of the respondents indicated that 76.7% of respondents were within the age range of 14-17years, the figure revealed that the students are within the age specification for secondary school students, twenty percent (20%) of respondents were within 18years above; 4% of respondents were within age of 10-13years. The ages 14 – 17 years were the majority of the respondents in this study. On gender, fifty-four percent (54%) of respondents were female and 46% were male. Thirty six point seven percent (36.7%) of the respondents were Muslims, 47.6% were Christians and 15.7% were of other religions. This means that, majority of the respondents are Christian and fewer Muslim. Upon evaluation, it was discovered that students of single-sex schools (female) had higher levels of knowledge with regards to academic performance than their counterparts. Furthermore, Chi square test confirmed that there was significant association between school type and sex of students and knowledge scores of academic performance. Such association was however not found for Age. Also, it was noted that there is significant difference between the academic performance of students of single-sex schools and co-educational schools over the year of study given the P-value (**0.007**) was found to be less than 0.05, with single-sex school students performing better academically compared to those in co-educational schools. A baffling issue however inherent in the study is that it was observed that there is no significant difference between the academic performances of male students in single-sex and Co-educational schools over the year of study, with P-value (**0.766**) exceeding 0.05. There is also no significant difference between the academic performances of female students in single sex schools and co-educational schools over the year of study since P-value (**0.343**) did exceed 0.05. The above-mentioned interpretations are explained in the discussions section.

In addition, from student-results obtained for year 2008, it was observed that school type unlike subject-choice did contribute significantly to academic performance. Duncan test conducted confirmed that single-sex schooling (as found in St Louis Grammar School and Ibadan Boys High School) contributed significantly to the performance of students compared to co-educational schooling as exemplified in the other schools selected for this study. In 2009, school type again contributed significantly to student's PASS level of performance over the years of study. However, it was observed that there was significant improvement in the academic performances of co-educational schools as Abadina College and Immanuel College out-performed the others. In 2010, there was a significant difference among the school type performance (PASS) since P-values (0.014) was found to be less than 0.05. School types contributed significantly to student's performance over the years of study.



Hypothesis one

H0: There is no significant difference between the academic performance of single sex and co-educational school.

H1: There is significant difference between the academic performance of single sex and co-educational schools.

TABLE 1: Independent samples Test of difference in academic performance of single sex and co-educational schools

STUDENTS	N	MEAN	STD.DEVIATION	T	df	Sig(2 tailed)	Mean Difference	REMARKS
Co-educational	10	61.400	38.2777	-3.069	18	.007	-85.8000	Significant
Single sex	10	147.7000	79.7682					

Based on the Table, we use T test to confirm significant difference the academic performance of Single sex and Co-educational school over years of study. The data indicated that there is a significant difference between Co-educational schools and Single sex schools academic performance over the year of study. Since P-value (.007) is less than 0.05.

Hypothesis two

H0: There is no significant difference between the academic performance of male students in single sex and co-educational schools.

H1: There is significant difference between the academic performance of male students in single sex and co-educational schools.

TABLE 2: Independent samples Test of difference in academic performance of male students in single sex and co-educational schools

MEAN	STD.DEVIATION	STUDENTS	N	T	df	Sig(2 tailed)	Mean Difference	REMARKS
61.400	38.2777	Co-educational	10	-0.303	18	0.766	--8.1000	Not Significant
69.500	75.43303	Single sex(male)	10					

In the table above, T-test was used to check for significant difference of academic performance of male students in Single sex and Co-educational school over years of study. The data indicated that there is no significant difference between male students in Single sex schools and Co-educational schools academic performance over the year of study. Since P-value (0.766) is greater than 0.05

Hypothesis three

H0: There is no significant difference between the academic performance of female students in single sex and co-educational schools.

H1: There is significant difference between the academic performance of female students in single sex and co-educational schools.

**TABLE 3:** Independent samples Test of difference in academic performance of female students in single sex and co-educational schools

STUDENTS	N	MEAN	SD	T	Df	Sig(2 tailed)	Mean Difference	REMARKS
Co-educational	10	61.400	38.2777	-0.972	18	0.343	--16.3000	<i>Not Significant</i>
Single sex(female)	10	77.7000	36.43303					

In the table above, T-test was used to confirm significant difference of academic performance of students among the selected school type over the year of study. The data revealed that there is no significant difference between female students in Single Sex schools and Co-educational schools academic performance over the year of study. Since P-value (**0.343**) is greater than 0.05.

DISCUSSION

The result obtained in testing hypothesis one reveals that there is a significant difference between the academic performances of students from Single Sex and Co-educational schools with students from single sex schools performing academically better than the students in co-educational schools. This is so as students from co-educational schools face a lot of psychological and behavioural problems which include but are not limited to: bullying of the female students by their male colleagues, the sexual distraction posed by female students to male students, gender differences among the students (Okonkwo, 2001; Neidell & Waldfogel, 2010). This result and assertion corroborates the finding of earlier studies like those of Ferrara (2005) and Smyth (2010) that girls in schools with single-sex programs achieve higher learning, display more self-confidence and leadership skills, and enter male-dominated fields at a higher rate. Studies have also shown that girls in single-sex classes are actually more likely to act outside of traditional gender roles. Boys might also feel freer to engage in pursuits they may not have considered at a co-educational school.

The result obtained in testing hypothesis two shows that the academic performance of male students from single sex schools and co-educational schools were not significantly different. However, it is imperative to note that the standard deviation for single-sex schools in Table 2 was larger relative to the mean ($X = 69.50$, $SD = 75.43$) and thus suggests the presence of outliers or a large disparity in the means of the sampling frame chosen from single-sex schools. It should therefore not be ruled out that a smaller standard deviation or a closer range of means might indeed imply significance. Despite the above assumption, and in relation to the non-significant difference assumption of the T-test, it is noteworthy to point out that boys receive strong messages that they must be in control and that any show of emotion is unacceptable from the society around them, with the result that they usually do not show how affected they are by academic failures and may not seek to pursue improved academic performances in a bid to keep their emotions under wraps irrespective of the schooling system in place (Kommer, 2006).

Furthermore, result obtained in testing the third hypothesis implies that there is no significant difference between the academic performances of female students in single sex schools and co-educational schools. This negates the positions of Ferrara (2005) and Smyth (2010) discussed earlier. It however tilts towards Willis' (1997) assertion that the highly regarded abilities of girls derive from their primary group socialization. Indeed, getting it right in the classroom as one gets it right at home is what counts (Kenway & Willis, 1997; Wills, 2007). Albeit, it is pertinent that we do mention here that while there is no significant difference, the



results of this hypothesis does not in any way attempt to negate the impact or effect (if any) of the schooling system on academic performance of the female student, or say there is no difference. It only asserts herein that the difference (if there is any) is not significant.

Conclusion

Before the 1990s, single-sex education was predominantly offered in private or religious sector (Anfara & Mertens, 2008). The interest has been renewed recently especially since 2003 when new regulations by the Department of Education renewed interest in single-sex education environments (Anfara & Mertens, 2008). There is mixed evidence on the success of one instructional setting over the other, resulting in the opinion that schooling-type may not be the cause of the academic failures mentioned in the introductory part of this paper. The research provides that school type has significant differences in their level of academic performances. Gender-orientation of the schooling type also has significant influence on the perceptions of comparative academic performances but did not prompt significant differentiation on the academic performances. In addition, school type contributes significantly to student's PASS level of performance over the years of study, that is, it influences their respective level of performance (PASS) while types of subjects offered by respondents do not influence level of performance.

Recommendations

Based on the problems identified from the study, the following recommendations are put forward. Guidance and counseling should be enhanced in schools with professional counsellor teachers in charge of guidance and counseling department and assigned a lighter teaching load to enable them be more effective as counselors. The Ministry of Education should put in place proper monitoring tools to ensure progress towards achieving the goals of gender equality not only in access to, retention of but also in performance in schools. Parents and guardians should support boys' and girls' basic needs to further enhance their academic achievement. Teacher interventions like in-service programmes should be improved to modify teacher behaviour and improve their teaching skills are to become more learner friendly and gender responsive during their interactions with both boys and girls in school. Students should not be restricted to any school type (single sex or co-educational) for their secondary school career, but should be given equal opportunities and encouragement to excel in their academic endeavours. Government, private organizations and individuals concerned with the business of education should endeavour to address the obstacles hindering effective academic performance of students. Developing achievement motivation in students through achievement motivation training can also go a long way in addressing the raised issue of academic failings.

**REFERENCES**

- Achimugu, L (2005). *The agonies of Nigeria teachers*. Ibadan: Heinemann Education Publishers Limited.
- Ahmed ,T.M (2003). Education and national development in Nigeria. *Journal of Educational Studies*, 10:35-46.
- Ajayi, I.A. (2002). Resource factors as correlates of secondary school effectiveness in Ekiti State. *Nigeria Journal of Counselling and Applied Psychology* 1(1):109-115.
- Akpan, E.U. (1987). Winning more students for science and technology. *28th annual conference proceedings, STAN*.
- Anfara, V. A., and Mertens, S. B. (2008). Do single-sex classes and schools make a difference? *Middle School Journal*, 40(2), 52.
- Arhebo, P.A, Adomeh, I.O.C. and , Aluede O, (2009). School's Counselors roles in the Universal Basic Education programme in Nigeria. Retrieved from www.ccsenet.org/ies.
- Balogun, F.A (2009). Structure of the nine (9) - year Basic Education Curriculum. *Paper Presented at a Workshop organized by Ministry of Education for Education Officers in Ondo State*.
- Bandura, A. (1973). *Aggression; A Social Learning Analysis*. Englewood cliff, NJ; Prentice Hall
- Bandura, A. (1989). Social Cognitive Theory. In R. Vasta (Ed), *Annals of Child Development*. Greenwich CT; Jai Press.
- Bandura, A. (1997). *Self - Efficacy, the Exercise of Control*. New York: Freeman.
- Barmao, A.C. (2006). The effects of streaming on students' performance in mathematics in secondary school Mathematics. *Dissertation. Njoro; Egerton University, Kenya*.
- Central Bank of Nigeria (2010). *Statistical Bulletin* .Abuja, Nigeria: Federal Government Press.
- Changeiywo, J.M. (2000). Students' images of science in Kenya: A comparison of gender differences, levels of schooling and regional disparity. *Dissertation .Njoro: Egerton University, Kenya*.
- De Ferranti et al. (2003). *Closing the Gap in Education and Technology T.W.B.L.A: A Case Study*, Washington, D. C: The World Bank.
- Ediho, O.G. (2009). The Challenges affecting the implementation of universal basic education in Delta State, Nigeria. *Journal of Social Sciences*, 20(3):183-187
- Fadipe, J.O. (2003). Quality control in education: the teacher factor. In T.E.Ajayi and J. Fadipe (Eds) *Skills improvement programme for effective performance of teachers in Nigerian schools*. A publication of National Institute for Educational Planning and Administration (NIEPA), Ondo, 128-143.
- Fafunwa, A. B. (1974): *History of education in Nigeria*. London. George Allen And Unwin Ltd.
- Federal Republic of Nigeria (1981) .*National Policy on Education*. Lagos: NERC.
- Federal Ministry of Education (2003).*Education Sector Status Report*, Abuja, Nigeria: Federal Government Press.
- Financial Times. (2007). 'Single Sex Schools Outperforming Mixed Schools' London
- Forum for African Women Education (FAWE), (1998).*Female education in mathematics and science in Africa: Teaching strategies, mythologies, time, and use of teachers in the classroom*. Nairobi: Forum for African Women Educationalists.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research & practice*. New York: Teachers College Press.
- Hinchliffe K (2002). *Public expenditure on education in Nigeria Issues, estimates and some Implications*. Abuja, Nigeria: World Bank.



- Ibrahim, Y.Y. (1979): Oral and socialization process: A socio-folkloric Perspective of initiation from childhood to adulthood Hausa Community. *Unpublished Ph. D.Thesis*, Bayero University Kano.
- Igbojinwaekwu, P.C. (2004). Gender Differences in Enrolment Pattern and Academic Achievement in Senior Secondary School Science and Mathematics. *Unpublished Ph.D. Thesis*, Unizik, Nigeria.
- Iverson G and Murphy P. (2007) *Rethinking Single-sex Teaching: Gender, school subjects and learning*. Open University Press Maidenhead.
- Jaiyeoba, A.O. and , Atanda, A.I. (2003). Community participation in the provision of facilities in secondary schools in Nigeria. *Paper presented at the skills improvement programme for effective performance of teachers in Nigerian schools at Ondo*, Nigeria
- Lenroot Roshel and Jay N. Giedd , (2006). 'Functional Sex Differences in the Human Brain" National Association for Single Sex Public Education, p. 1070. Retrieved February 13, 2007 .
- Lepore , Paul and Warren, John., (2007) "A Comparison of Single-Sex and Coeducational Catholic Secondary Schooling: Evidence from the National Educational Longitudinal Study of 1988," *American Educational Research*
- Marsh, H.W., Smith, I.D., Marsh, M. and Owens, L. (1988). The transition from single-sex to Co-educational high schools: Effects on multiple dimensions of self-concept and on academic achievement. *American Educational Research Journal*, 25, 237-269.
- Martinez P, and Munday, F (1998). 9000 voices student persistence and dropout in further education. *Further Education Development Agency Report No 7*.
- Moja Tuns (2000). Nigerian Education Sector Analysis: An Analytical Synthesis of Performance and Main Issues. *Paper prepared for World Bank Monograph Series, 1(7)*, Abuja, Nigeria: NUC
- Mulford, B. (2002). *Education for a Better Future: Trends, Challenges and Priorities*. UNESCO.
- Mulkeen Aiden, David W. Chapman, Joan G. Dejaeghere and Elizabeth Leu (2005). Recruiting, Retaining, Retraining Secondary School Teachers in Sub-Saharan Africa. *GEC Working Paper Series*. Washington DC: The World Bank
- Myra Smith and David Bally. (2001). *Still Failing at Fairness: How Gender Bias Cheats Girls and Boys in school and what we can do about it*. Scribner. Publishers.
- National Association of Single Sex Public Education (NASSPE 2007).Single Sex Education. [wikipedia.org/wiki/single-sex ed](http://wikipedia.org/wiki/single-sex%20ed).
- Neidell, M. and Waldfoegel, J. (2010). "Cognitive and noncognitive peer effects in early education." *Review of Economics and Statistics* 92(3), 562-76.
- Neuliep, J. W. (2002). *Intercultural communication: A contextual approach*. Boston: HoughtonMifflin.
- Obe, O. (2009). Issues of funding education for standards: Counseling perspectives. *J. Educ. Res. Dev.* 493:164-170.
- Ogunnu, M.A. (2000). A survey of the status of implementation of the Junior Secondary School curriculum in Edo and Delta States of Nigeria. *International Journal of Educational. Planning and Administration*,. 1(1):28-37.
- Okonkwo, I.P. (2001). Adolescent Reproductive Health in Nigeria: Problems and Prospects at the Population and Family life Education to Secondary School Teachers in Delta State.
- Okorodudu, R.I. (2011). Innovations in teaching and learning experiences. *Educational. Psychology*. 5(1):2 -12.
- Olafsdottir, P. M. (1989). A Paper on the Benefits of Single Sex Kindergarten for Both Girls and Boys. www.singlesexschools.org/events



- Omoregie, N (2005). Re-packaging secondary education in Nigeria for great and dynamic economy. *Paper presented at the 2nd Annual National Conference of Association for Encouraging Qualitative Education in Nigeria (ASSEQEN)*. 9th-11th May.
- Orodho, A. 1.(2003). *Essentials of Education and Social Science Research Methods*. New Delhi: Masola Publishers.
- Perry, T., Steele, C, and Hilliard, C. (2003). Young, gifted, and Black. Boston: Beacon Press. The persisting racial gap in college student graduation rates. (2004, Autumn). *The Journal of Blacks*
- Riordan , Cornelius (1990) *Girls and boys in school: Together or Separate?* New York: Teacher's College Press. 37
- Salisbury, J. and Jackson, D. (1996) *Changing Macho Values: practical ways of working with adolescent boys*. London: Falmer Press
- Shapka , Jennifer, and Keating ,Daniel., (2003) "Effects of a girls-only curriculum during adolescence: performance, Persistence, and Engagement in mathematics and science," *American Education Research Journal*. 40(4), 929- 961.
- Sirigi, S. November 20, 2000. Study blames poor reading culture on 8-4-4 curriculum. *Daily Nation, PA*
- Smithers, A. S., and Robinson, P. (2006). *The Paradox of single-sex and coeducational schooling*. University of Buckingham, U.K.: Carmichael Press. Retrieved from <http://www.buckingham.ac.uk/education/research/ceer/pdfs/hmcscsd.pdf>
- Sukhnandan, I., Lee, B. and Kelleher, S. (2000) *An Investigation into Gender Differences in Achievement: Phase 2: School and classroom strategies* (Slough, National Foundation for Educational Research).
- Thompson, Jennifer, (2003) "The Effects of Single-Sex Schooling on Women's Choice of College Major," *Sociological Perspectives*
- Vlushtaq. G. (2008). *The Case for Single Sex Education*. Jumuah Magazine. Lahore, Sheikh Ghulam Ali & Sons Ltd.
- Wango. G. M. (2006). *Policy and Practice in Guidance and Counselling in Secondary Schools in Kenya*, *Unpublished PhD Thesis* University of Birmingham
- Wasagu M (2006, 28th March- 1st April). Presidential address at the opening ceremony of Science Teachers Association of Nigeria (STAN) Primary Science Workshop, held at Uyo, Akwa Ibom State.
- Watson, C., Quatman, T., and Edler, E. (2002). Career Aspirations of Adolescent Girls: Effects of Achievement Level, Grade, and Single-Sex School Environment. *Sex Roles*, 46(9/10), 323-35.
- Warrington M and Younger M. (2003) 'We decided to give it a twirl': single-sex teaching in English comprehensive schools. *Gender and Education*, 15, 339-350.
- Wise, C.W (1956): *History of education in British West Africa*. Toronto: Longman Green & Co.
- Wiseman, S 1993. The Educational Obstacle Race: Factors that hinder pupil's progress. *Educational Research*. 15.25:87-93.
- World Bank. (2004). *Better Investment Climate for Everyone; World Development Report 2005*, Washington DC: World Bank
- World Bank, A. H. D. D. (2007). *Secondary Education in Africa: At the Cross Roads*. Washington DC: World Bank.46 (2), 257-78.
- Younger M and Warrington M. (2006) Would Harry and Hermione have done Better in Single-Sex Classes: A review of single-sex teaching in co-educational schools in the United Kingdom. *American Educational Research Journal*, 43, 579-600