

GENDER IMBALANCE IN ACCESS TO MATHEMATICS EDUCATION: IMPLICATIONS FOR PRODUCTION OF FEMALE MATHEMATICS TEACHER.

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Abstract

In modern society, women especially have vital roles to play in the development of a nation. This is so because women constitute half of the population. This paper observed the gender in balance in access to mathematics education, by analyzing enrolment of males and female students in mathematics department of federal college of education Kontagora, it also discusses the effect of the in balance on female mathematics teacher production, strategies to improve on the poor enrolment and implications on mathematics teacher production. Recommendation were proffered among which is professional association such as (MAN) should feature and promote successful female mathematicians and teachers implications parents should de emphasize gender bias attached to mathematics.

In modern society, women especially have vital role to play in the development of a nation. This is so because women constitute half of the population. They are home makers and or heart of the family, they promotes social, cultural and fundamental values of a society and permanent change is often best achieved through them. In fact, full community development is not possible without their understanding, cooperation and effective participation (Adaralegbe, (2006). The education of a woman just as that of their male counter part is of equal relevance to the society, but because woman have less equal opportunities to meaningfully contribute to societal development. No country can boast of meaningful development if majority of its woman are illiterates. Millions of girls are raised in an – environment of neglect, over work and abused simply because they are female (UNICEF, 1995). Research has shown that millions of girls do not have access to school despite the concerted efforts to push the cause forward. Okeke, Nzewii and Njoku (2007) identified child labour, poverty and lack of sponsorship, quest for

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wealth, bereavement, truancy, broken home, engagement of children as house help as factors on the dog in the wheel of children is access to education. Women education also produces social gains, by improving their health and that of children, increasing child schooling and reducing some of the burden on men. Educated women involve in more productive economic activities and contribute their quota to nation building. The economic advancement and empowerment of women has enable them achieves their personal and family goal such as participation in partisan politics and educating their children. They will be in a better position to check early marriage on the part of their daughters, malnutrition, mental instability, indiscipline, adolescent delinquency, secret cult, arm robbery and other social ills plaguing the country(Hauwa, 2005). The right to education which is a fundamental human right is frequently denied to girls. Some parents justify the denial of girls their right to education to prevent then from bringing shame to their family through early pregnancy, yet others believe that women who are at the same level of education as the men are disgrace to the community because more often than not, they will not get married and if they do, it will be to foreigner. For such parents, early marriage is the best way to prevent this and at the same time preserve tradition (Grace, 2009). With regards to career choice, female enroll more in art – related courses than in mathematics, science and technology, several studies have shown that girls are continually faced with numerous problems that adversely affect their interest and achievement in science subject (Okeke 1990 and Obanjo 2000). Salma (2001) observed that mathematics is the most dreaded subject by pupils and students. According to her, the enrolment of undergraduates in mathematic is relatively known when compare with other courses. However, the knowledge of mathematics is highly required in the study of social sciences, sciences and technology coursers. Thus students irrespective of gender need to be encouraged. Oke (2000) reported how enrolment of female in science and technology related courses at the university level of education. It is observed that female take the least resistance by opting for disciplines designated as feminine such as liberal arts, education, nursing and shy away from courses in sciences, engineering and mathematics. For instances, the enrolment of undergraduate in mathematics education at Nigerian college of education and university are relatively low and this affect the annual turn out of professionally qualified teachers to handle the teaching of mathematics in primary and secondary schools. Brown (1991), noted that the acquisition of formal and non – formal types of mathematics, science and technology education will enable women to contribute to national development, be independent, t have improved relationship with their husbands and in dealing with many problems confronting their families.

Materials and Methods

The enrolment figures of male and female mathematics students of Federal College of Education (FCE) Kontagora were obtained from the Department of Mathematics and it was the only materials used for the purpose of this investigation. The raw data was converted into percentages.

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Result
Mathematics Students Enrolment by Session (2007/2008 – 2011 / 2012)

Year	No of student				Total
	Male	Percentage (%)	Female	Percentage (%)	
2006/2007	100	71.4%	40	28.6%	140
2007/2008	127	62.6%	76	37.4%	203
2008/2009	14	58.3%	10	41.7%	24
2009/2010	60	61.2%	38	38.8%	98
2010/2011	36	78.2%	10	21.8%%	46
2011/2012	73	77.6%	21	22.4	94
2012/2013	43	78.2	12	21.8	55
Grand total	453	6836	207	31.4	660

Discussion

Table 1, shows that in 2006/2007 session 71.4% of mathematics students enrolment were male while 28.6% were female. In 2007/2008 set 62.6% were male and 37.4% were female. Similarly 58.3% were male and 41.79% were male, in the year 2008/2009 while in 2009/2010, 78.2% were male sand 21.8% were female and 77.6% were male while 22.4% female in the year 2011/2012 finally 78.2% were male and 21.8% were female that enrolled for mathematics in the year 2012/2013.

The analysis of the findings from 2006/2007 session to date shows that male students are always more in number in mathematics than their female counter part, this is a clear manifestation of gender in balance towards males. In line with this the federal government of Nigeria indicates commitment to building a nation devoid of gender discrimination, guaranteeing equal access to political, social and economic wealth creation opportunities for women and men and developing a culture that places premium in the protection of all including the children (federal ministry of women affairs and social development 2006). However, Nigerian women seem to be lacking behind in terms of contributing to the development of the nation this could be as a result of low enrolment in mathematics sciences and technology. This is in line with NUC (1993) quoted in Hauwa 2005, reported which revealed that females enroll more in the arts related courses. There is a global concern about the proportion of women in science, mathematics and technology education (Thomas, 1986).

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STAN (1992) agreed that female enrolment and females achievement is known to be lower than that of the males, which means that even within the low level of science, mathematics and technology education in Nigeria, the female, as a group are still fewer. Yahaya (2004) stressed that although the females constitute about 50% of the national population. They are not equitable represented in student enrolment at the institution of higher learning in Nigeria. For instances, the workforce of the Nigeria federal civil service comprises 76% male and 24% female. Among the 70% of the Nigeria population estimated to be living below poverty line over 65% are women.

Alle – Willians (2007), affirm that girls were not given the same educational opportunities as the boys and that they were discouraged from taking advanced courses in certain subject area. Subject like physics, mathematics and engineering etc were considered infermine, but Brown (2005) was of different opinion that girls on their own have poorer attitude towards science, they enroll less often in science courses and demonstrate lower achievement level in science than boys. In the same vein Adegboye (2002) observed that 68% of parents do not want their daughters to study science. This is reflected in their policy on education for their children and this has an impact on the choice of mathematics as a career by the female children.

Yahaya (2002) identified the factors, militating against the empowerment of Nigerian women as ignorance, illiteracy, sex stereotype, rivalry among women, religion and cultural beliefs and poor economic base. Similarly, Okebukula (2002) noted that low level of female representation of Nigerian women in sciences education is largely coursed by factors such as the community, the home, the school and the individuals. Imogie and Eralkhean (2008) observed that one of the major factors hindering empowerment is low enrolment of women in science and technology courses. According to them there is need to examine carefully not only whether women are learning and what they are avoiding or being discouraged from pursing.

Strategies of Improving Poor Enrolment into Mathematics in Education

However, the focus of this study is not just the advancement of reasons for gender imbalance access in mathematics education in F.C.E Kontagora but an intervention strategy that will increase and retain enrolment of female into mathematics education.

- Ready employment and good salaries for female mathematics graduate.
- Government should give necessary incentives.
- Reading materials should be provided for female mathematics students.
- A warding of scholarships to those intending to study mathematics combined courses.
- Government should create the enabling environment for effective learning / teaching of mathematics.
- A solid foundation should be laid for materials course by ensuring that only qualified teachers teach the subject and that the teachers teach well even right from the lowest level of education.
- Early professional counseling of school children.

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- Gender education for the parents and teachers should be put in the curriculum.
- Sensitization seminar for girls be organized at intervals.
- Teacher should not apply gender differences in teaching and try as much as possible to desensitize the fear of mathematics.
- Teachers should render practical teaching and usage of mathematics teaching aids in the lower primary and secondary.
- The teacher should make the children feel the relevance of mathematics in everyday life and demystify mathematics. Its application to real or daily life should be emphasize.
- The teacher should be patient, friendly, neat, dress well and use a variety of teaching methods and give a lot of exercises.

Recommendations

- Mathematics should be taught with new approaches starting from the primary school level, play – way method of teaching with audio usual aids should be employed.
- The teachers and parents should de – emphasize gender bia attached to mathematics
- More incentive should be given to girls who read mathematics in order to encourage younger mathematicians
- Nigerian college of education and universities should lower their cut of marks in the post ume assessments for female that apply to study mathematics in order to improve female enrolment in the programme
- Professional association such as Mathematics Teachers Association should feature and promote successful female mathematics internal networks for the career development of the young women who show interest in mathematics should be develop.

Implication for Female Mathematics Teacher Production

The results of the above study have far reaching implications for the various mathematics education options in tertiary institutions. There is an inter relationship between the Primary, Secondary and Tertiary institutions especially with respect to enrolment in tertiary schools. Unless a sound foundation is laid on the teaching of mathematics subjects in primary and secondary schools. It will not be possible to have enough students in our higher institutions of learning. Nigeria is looking forward to her technological advancement. The low in number of mathematic students in higher institutions will result to shortage of supply of mathematics teachers in our Primary and Secondary in turn in Engineering, Medicine and other Mathematics related courses who will ensure this advancement.

Recast the Nigerian women cannot be said to have contributed her best in science and technology development of the nation. The opposing forces of sex stereotyping, as we have seen, is also an obstacle to a woman educational betterment. No matter the amount of years the educated Nigerian woman spends in acquiring skill and expertise she is still best employed as a home manageress; hence the derogatory

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male chauvinist saying “women’s education end in the kitchen” some husbands even hinder their educated wives from putting their talents and the acquired knowledge in to use. This should critically be look into.

Looking at our primary and secondary schools now we will notice a great shortage of mathematics teachers and the few there have to be shame by a large numbers of students which put a heavy workload on the teacher among the few mathematics teacher there are relatively few female teacher’s teaching mathematics, hence girls and society at large lack what would be the most immediate female role models in mathematics education. These shortage of female teacher’s among other inconveniences, create uneasiness in parents who fear to have their daughters in the company of male teachers for long period because, traditionally among some tribes girls are not even allowed to talk among men except in very special cases while modern parents harbor fears of sexual harassment or intimidations developing between their daughters and the male teachers.

The National Policy on Education as well as all the country’s national development plans since independence has laid much emphasis on scientific and technical education. It is therefore ironic that it is in the pure science, mathematics and technological education that our secondary schools are most deficient in teachers, facilities and students performance. Okeke (1997) is of the opinion that all efforts at national development will faster unless deliberate step are taken to encourage more women to participate in the study of science and technology subject.

Conclusion

The enrolment pattern of mathematics education generally into the department is very low and also the male enrolment out number the female enrolment with male having 68.6% and female 31.4% for the period of 7 years. Government, parent and the stake holders should revisit the teaching and learning of mathematics in primary and secondary schools, enlighten parents an the importance of female education and encourage female to pursue higher education for no country can progress without the aid of its women.

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