THE GENDER FACTOR: A CHALLENGE FOR GENDER EQUALITY IN TEACHERS CLASSROOM MANAGEMENT ROLE FOR OPTIMAL ACHIEVEMENT IN SCIENCE

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Abstract

The paper succinctly observed the incidence of gender-factor as a significant one that affects achievement in science classroom. It went further to identify the existence of an unfortunate gender-imbalance in science classroom which invariably has also affected teaching and achievement in science. The paper further observed that the implication of such existing gender inequality is a necessity for classroom teachers in their gender-fairness or equality role in their day to day leadership role for optimal achievement in science.

Across the entire globe, there is the challenge of gender disparity which inevitably has affected enrolment and achievement in science related fields particularly in subject such as physics and chemistry. Eric Digest (2003) affirmed that the effort to provide an equitable education to all students has led to extensive research or the effects of racial and ethnic differences and of gender, or learning and achievement.

Fortunately, achievement in science and technology and mathematics (STM) subjects can not be relegated to the background since according to according to Akano (2004) science is the bed rock of technology, industrialization and model civilization. In fact, without science there is no technology and without technology there is no modern society (development) which we all crave after. Also, Bilesanmi- Awoderu and Kalesanwo observed that the role of science in the advancement of human beings on issues relating to public health, water, infrastructure, energy, food security, environment and development is a prominent one. This is why according to them the world's development has become increasingly driven by and pace also dictated by science and technology so that no country can afford to be passive. It is on this note therefore, that this paper intends to observe the incidence of gender factor in learning and achievement in science and of its general implication for teachers in the leadership and administrative role in school and science classroom.

Gender - Factor in Science Achievement

The gender factors could refer to the description, differentials, discrimination between the boy and girl, the male and female, man or woman, in terms of their ability, personality, preferences, roles, in social and educational issues. It is purely based on their sex description. Doyle (1989) in Whitehead (1996) opined that for boys the situation is different because academic success is compatible with stereotypical notions of masculinity, leading to high achievement and a high-status job. He observed that another important strand of masculinity however is the avoidance of the feminine in which boys avoid anything that makes them feminine or sissified so that he must not be caught being a girl. In his own opinion, if boys are choosing school subjects as a way of defining themselves as masculine, thus strengthening their gender identity, they will avoid subjects that are defined as appropriate for girls and choose only those subjects defined as appropriate for boys. Indeed, the effectiveness of a particular subject is defining the boy as masculine is of course, undermined if girls also choose that subject particularly if they happen to be successful at it. The threat according to him, posed to the boy's gender identity by girls taking masculine subjects could well explain the hostility shown by some boys towards girls in subject such as mathematics, science and technology. This indeed is the occurrence of gender-factor in science classroom which invariably determines achievement. However, Eriba and Ande (2006) reported in their studies that boys performed better than girls in chemistry problem solving. Besides Ukwungwu (2002) reported a notable gender difference in favour of boys that the girls need great attention during integrated science class.

Gender - Imbalance in Science Classroom

Suleiman (2004) asserts that gender imbalance in educational attainment have been a major reason that contributes to low representation of women in the mainstream of economic activities. This observation was clearly established by Eric digest (2003) which affirmed the continuing challenge of gender imbalance by saying that the lack of conclusive findings about a gender gap in achievement as

measured by standardized tests, suggests that there is no systematic disenfranchisement of students of either sex, although traditional gender differences in both course selection and subject achievement still persist. Besides, the percentage of female enrolment in science subject at the senior secondary school remains significantly low in many countries.

Although besides the fact that teacher attitudinal factor or leadership style in their science teaching procedure can enhance gender-inequality, Kimura (2005) in his research on the biological explanation of gaps in performance suggested that differences in brain structure, hormone production and maturation rates may account for girls greater advantage in school related tasks. Also Harlen (2004) in Skelton, Francis and Valkanova (2007) in his review of 20 years of research into assessment procedure observed that teachers judgment of boys' academic activities were informed by their behaviour and as boys tended to misbehave more than girls they were more likely to lose out of good assessment grades. Again this is an implication of teachers' leadership and administrative styles in classroom or gender-imbalance.

Gender-Equity in Science Teachers' Class Management for Optimal Achievement- The Challenge

According to Edet (2006), teachers are seen as the managers of the science classroom as well as having both the subject knowledge and the ability to direct the class. Their roles include pacing science classroom activities, monitoring work, designing efficient routines and teaching students how to use them. Besides, Oforma and Nigel (2003) in Edet (2006) also assert that teacher management and leadership role involves among others, the organisation of teacher pupil interaction. But not all classroom management or leadership roles of teachers are carried out with gender-fairness or rather done to exhibit gender-equality in the day-to-day management and leadership roles of science teachers.

Science teachers gender-fairness (gender-equality) style of leadership connotes certain attitudinal behaviour which are applied or manifested in an appropriate or favourable manner to both male and female students during science classroom's instruction and interactions. Nneka and Anaekwe (2005) identified some attitudinal behaviour of teacher as manifested in their classroom leadership style as gender unfriendly or gender-unfairness as follows:

- Selection or appointment of boys as prefects in STM classes.
- Unequal access for male and female students to participate in class discussion and demonstration in science classes.
- Consistent usage of masculine pronoun such as he, his etc when discussing STM concepts.

Gender fairness is another term used for gender equality, meaning equal and favourable attitudinal manner or behaviour shown to both male and female student without any discrimination or prejudice. In fact, in the light of the existence of gender imbalance in science classroom the implication on teachers leadership or management role during science technology and mathematics (STM) classes is that science teacher should develop and adopt curricula, teaching materials and textbooks which can improve the self-image, lives and work opportunities of girls, particularly in areas where girls, women or females have been underrepresented such as in STM subjects. Also teachers in STM classes should clearly advocate and'discriminate against gender-biased educational processes including curricula educational materials and practices, teachers' attitudes and classroom interaction. Students-teachers interaction should be that of gender-friendliness, promoting equal access for male and female students to participate in class discussion, as well as ample and consistent usage of masculine formulas (for example He, His, etc) to foster gender-equality.

Besides science teachers need to make their curriculum gender-inclusive. That is, choice of curriculum content to include subject matter of interest and importance to both males and females alike. Science teacher with a view of mastering gender fairness must need to employ a variety of instructional strategies which can accommodate different learning styles used by both male and female students in science classes. Lastly, science teachers need to be gender sensitive, given equal attention to both male and female by setting both at the same level of expectations.

Conclusion and Recommendation

It is glaringly observed that there is the existence of gender factor in science achievement and that various literatures affirmed the existence of gender imbalance in science classroom which invariably have a far reaching implication on science achievement.

The paper therefore suggests in a bid to promote gender-equality in science classroom by teachers in their leadership role.

- Teachers, administrators and curricular developers in their classroom and school leadership role should develop and present science curriculum materials in a gender-fairness mode especially with science textbooks.
- Regular usage of gender-friendly pronouns in science classroom.
- Usage of different and appropriate learning styles that cater for the needs of boys and girls in science class instruction.
- All science teachers in the leadership role should be gender sensitive in creating an enabling learning environment that can keep both male and female learners at par for better
  achievement in science.

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