


Impact of Gender Stereotype on Secondary School Students' Self-Concept and Academic Achievement

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Abstract

The aim of the study was to investigate the influence of gender stereotype as a predictor of secondary school students' self-concept and academic achievement. The study was guided by four purposes, four research questions, and four hypotheses. The study adopted ex post facto design. The research sample was drawn from eight government/public senior secondary schools in Udi education zone. Nine schools were randomly selected from the 227 schools. A total of 342 senior secondary II school (SSII) students made up the sample of the study. A 20-item students' stereotype self-concept questionnaire (SSSCQ) was adapted from Marsh's Self Descriptive Questionnaire II (SDQII), and a 10-item students' mathematics achievement test (SMAT) was developed by the researchers after reviewing related literature. This was done with the help of experts in the areas. The instruments were face and content validated and used for the collection of data. In analyzing the data, mean and standard deviation were used in answering the research questions while a *t* test was used in testing the four hypotheses. The findings of the study indicate that gender stereotype has significant influence on students' self-concept and academic achievement in favor of the male students. On the other hand, school location has significant influence on academic achievement of students but has no significant influence on students' self-concept.

Keywords

self-concept, gender, gender stereotype, academic achievement

Introduction

Gender is mainly used conventionally to describe how the society gives certain roles to boys and girls. Gender has to do with behaviors that have become associated with masculinity and femininity, and with how people see their roles as male or female (Kauffman, 1997). Therefore, gender is related with how individuals perceive themselves in such a way that most people of the same sex identify themselves with certain attributes. These attributes affect children as they develop. Without doubt, the environment a child finds himself or herself in has a lot of impact on the child. According to Berk (2010), girls and boys are treated differently at birth. Girls are dressed with pink, and parents tend to be gentle with the girl child. On the other hand, boys are dressed with blue materials, while parents are harder with them. In the process of treating children differently, girls are offered more sex-stereotyped toys, and without doubt, these children grow up looking and acting differently. This is in line with Kauchak and Eggen (2011) who stated that male children are regarded as handsome and seen as tougher and harder, and parents are rougher with their sons and involve them in more physical stimulation than their female children. It was along this direction that the American Association of University

Women (AAUW; 2006) argued that the differential treatment given to boys and girls by teachers and the society dangerously hampered the educational progress, self-esteem, and career choices of girls. If this is so, there are the indications that self-concept and academic achievement of male and female children could be affected by stereotyping. According to Aboud (1988) and Durkin (1995), stereotypic views may reflect cognitive developmental changes and have impact on the way children understand the meaning of categories, attributes, and changes in role-taking skills. Therefore, stereotypes testify individuals' orientation and past experiences, which could manifest positively or negatively as individuals interact with others within and outside their immediate environment.

It is believed that stereotypic views might affect individuals' self-cognitive development, as well as their feelings, actions, and attitudes. According to Allen (2000), stereotype

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is associated with the development of beliefs concerning the traits supposedly possessed by most members of a society. It is an exaggerated belief that members of a group have certain traits that are peculiar to them. This implies that the impact of stereotype tends to change the individual's perception of reality over a period of time. Stereotypes are widely held beliefs about the character and behavior of all members of a group. Stereotyping is the perception, clarification, and assessment of social objects (events) on the basis of specific notion (Ramalingam, 2006). A stereotype is a rigid, simplistic caricature of a particular group of people, which in one way or the other can affect individuals by limiting them on their academic achievement (Kauchak & Eggen, 2011). From this evidence, it is possible that stereotype might limit children from pursuing their career choices. Stereotype becomes a problem when forces in schools and the society limit the academic potential of either male or female. According to Francis and Skelton (2005) and Wessel (2005), gender stereotypic views create negative influence on children in their choice of career decision, and females are less likely to study engineering and computer sciences than males. Therefore, there are some indications that gender stereotype can influence individuals' academic perceptions and achievement.

Ryan and Adams (1999) developed a general model called the "family school relationship" (FSR). They proposed that those features of the child or family that have the most immediate connection to school success will have the greatest influence on school outcomes. The researchers used the FSR model to show how family relationships affected the school success of more than 4,300 boys and girls between the ages of 6 and 11. The model showed that socio-economic background and stereotyping play a powerful role in the lives of children and had affected many variables in the model. According to the researchers, higher levels of students' stereotyping lead directly to more positive or negative attitudes toward school in children. Positive attitudes lead to higher academic achievement, while negative attitudes lead to lower academic achievement. Therefore, stereotyping is a very important determinant of a wide range of social and psychological functioning of students.

According to Tajfel (1984) and Rutland (1999), stereotypes are learned early in childhood through normal socialization instead of direct learning or experience. For Aboud (1988) and Durkin (1995), stereotype influences cognitive developmental changes of students and, in effect, affects the way they understand the meaning of construct, attributes, and change in role-taking. The implication is that, in the process of these changes, the students' self-concept might be affected. For G. N. Martin, Carlson, and Buskist (2007), stereotype serves to justify a student's experiences and anticipations, and is a relatively positive or negative evaluation of oneself. This means that a stereotype that categorized a particular group as ineffective, and dull, tends to manipulate that group by implication. G. N. Martin et al. (2007) stated that

once individuals are categorized as members of a particular group, the stereotype of that group influences the impression of these individuals involved. For example, if parents and teachers believe that females are not good in the sciences, the tendency for the female students is to lose interest in sciences to conform to that schema. Bargh (1989) is of the opinion that stereotypes are relatively automatically activated in particular contexts based on the perception of people around. For Steele (1997) and Aronson and Fried (2002), stereotype has two repercussions: the anxiety about conforming to the stereotype (i.e., acting to fulfill the stereotype) and disengaging oneself from the stereotype. If this is so, definitely, the individual self-concept will be affected either negatively or positively depending on the situation the person finds himself or herself in. Psychologically, stereotyping affects both males and females and makes them vulnerable toward that direction. For Schmade (2002), the degree to which individuals identify with relevant or irrelevant groups affects how strongly the stereotype influences their performance and achievement.

Self-concept is seen as the way individuals regularly describe themselves in relation to their physical, social, emotional, and psychological feelings. For G. N. Martin et al. (2007), self-concept has to do with the individual's feelings, knowledge of self, and ideas about self. This means that self-concept is the totality of an individual and all that is peculiar with the person. At the center of self-concept is one's self-schema, which is a mental framework, a cognitive structure that organizes individuals' emotions, knowledge, and ideas. Social psychologists such as Markus and Nurius (1986), and Higgins (1987) believe that self-concept has to do with individuals' possible selves. Therefore, one's self-concept plays a lot of roles in the development of the person academically, socially, and psychologically. Bem (1981) believes that social impact on behaviors can affect the individual's self-concept because individuals always learn about themselves by observing how they behave. When students are stereotyped and work along the same view, it tends to affect them from different dimensions. Rogers (1980) believes that the core of one's personality is the self-concept of that individual. G. L. Martin and Osborne (1992) stated that individual self-concept is the collection of beliefs, thoughts, and feelings that individuals have about themselves. It is the individual's self-image that is the way the person sees himself or herself. Self-concept is seen as a general term that refers to the wide range of one's self-descriptions made by individuals. Most of the individuals' self-descriptions have been associated with rewards that are likely to elicit very positive images and emotions. This implies that how individuals perceive themselves in terms of the stereotypes eventually affects the totality of their behavior. This is what the present study has set out to address.

According to Demidenko, Tasca, Kennedy, and Bissada (2010), self-concept contains three parts: self-esteem, stability, and self-efficacy. Self-esteem is the evaluative component,

where one makes judgment about his or her self-worth. In their views, stability refers to the organization and continuity of one's self-concept. Self-efficacy is best explained as self-confidence and is specifically connected to one's abilities. For McGraw (2008), self-concept is a person's composite or collective view of himself or herself across a multi-dimensional set of specific precepts. It is based on self-knowledge and evaluation or worth of a person's capabilities that one formed through experience and interpretation of the environment. McLead (2008) sees self-concept as how people think and evaluate themselves. Self-concept is an internal model that comprises self-assessment (Fleming & Courtney, 1994). Features associated with self-concept include personality, skills, abilities, occupations, hobbies, and physical characteristics, among others. A person's self-concept may change with time as reassessment occurs, which in some cases leads to identity crises (Gerrig & Zimbardo, 2002). Self-concept is not restricted to the present; it includes past selves and future selves. The past self represents the activities and experiences of the individual in previous occasions, while the future self indicates one's proposals and intentions that have not been accomplished. These correspond to hopes, fears, standards, goals, and threats (Santrock, 2009). The present study hopes to find out the impact of gender stereotype on students' self-concept and academic achievement.

Tiedemann (2000) indicates that parents' gender stereotypes and expectations for their children affect children's understanding of themselves. Researchers believe that self-concept develops later, around age 7 or 8, as children are developmentally prepared to begin to interpret their own feelings, abilities, and feedback they receive from parents, teachers, and peers about themselves (Benner & Mistry, 2007). Despite differing opinions about the onset of self-concept development, researchers agree on the importance of one's self-concept. Self-concept influences people's behaviors, and cognitive and emotional outcome, including academic achievement, levels of happiness, anxiety, social integration, self-esteem, and life satisfaction (Marsh & Martin, 2011). It is observed that females are more extroverted, anxious, and trusting, and have lower self-concept and self-esteem than their male counterparts (Berk, 2008, 2010). This can contribute to the gender differences that arise between male and female children. In considering gender stereotype, students' self-concept, and academic achievement, a demographic variable that mediates the students' influence may include location. This has to do with whether the school is located in urban or rural areas.

The emphasis on education and the amount of support given to children varies from one locality to another. One of the most important effects of geographical location is the difference between the educational conditions in the urban and rural areas. Parents in the rural areas are on the average poorer than those in the urban areas. Therefore, they are less able to provide their children with school requirements and end up withdrawing their female children from school to

enable them to cope with their financial obligations. Children in the rural areas are not so much acquainted with mechanical toys, amusement parks, electrical gadgets, books from public libraries, newspapers and periodicals, cinema, television, and film shows. These are known to enrich the education of children in urban areas, and this may influence their achievement and self-concept. In the present study, location is perceived as a setting in which teaching and learning take place such as school location. In other words, school location is categorized into urban and rural areas. Location can affect or influence learning, depending on the opportunities found or available in a particular location (urban and rural). It equally depends on the interest and emphasis on education, based on the location that determines the academic achievement of children. According to Kauchak and Eggen (2011), negative stereotypes about urban students create the impression that developing a productive learning environment, through classroom management, is very difficult and seem almost impossible for teachers. This implies that stereotyping in relation to location can equally affect the development and academic achievement of children. Therefore, students whose self-concepts are not strongly developed can equally be affected by stereotypic views.

Academic achievement refers to the outcome of teaching and learning acquired by individuals, more especially by students. It is commonly measured by examination, test, or assessment. To achieve is to gain by doing something successful with an effort or skill. It is believed that academic achievement concerns mental health. Achievement involves the individuals' physical and intellectual skills, which lead to satisfactory means of adjustment, social sensitivity, and adequate self-concept. Academic achievement is based on the degree of intellectual stimulation that the child could receive from learning situations. The student's gender stereotype and location may play vital roles in his or her academic achievement. In a study carried out by Vescio, Gervais, Snyder, and Hoover (2005) on stereotypes, the finding indicated that powerful males use stereotypes to judge females. Stereotype seems contextually relevant when emphasizing females' weaknesses and strengths. For Steele, Spencer, and Aronson (2002), underachievement is a psychological response to stereotype that characterizes females as inferior to males on a specific task such as mathematics in a school-specific domain. Negative stereotype is a cognitive and emotional burden that impedes performance and consistently yields negative expectations (Martin et al., 2007).

Theoretical Framework

According to Bandura's (1977) social learning theory, human behavior is a function of the person plus the environment. In other words, the person, the behavior, and the environmental situations are highly interrelated. Each is capable of influencing the other. The theory assumes that when two persons or groups interact, they become part of each other's

environment. This means that school learning occurs as a result of interactions of children and parents, children and teachers, children and peers, and children and school environment. The theory further holds that performance in school learning is traceable to gender stereotype as it relates to the learners. This may be explained on the ground that family and school interactions may influence the child's performance in school. Based on the assumption of the theory, the social learning theory stipulates that academic dysfunction sometimes arises from gender stereotype and location of the student. This theory has a link with the present study as it has highlighted a link between academic achievement and the students' gender stereotype. The theory will therefore serve as a guide to identify the elements of students' gender stereotype that may influence both academic performance and self-concept with regard to teaching and learning in secondary schools. The social learning initiated by Bandura (1977) argues that learning is a product of the individual and the environment. This implies that the interaction between a student and the learning environment determines, to a certain extent, the performance of the student in a given school subject. The environments include both the school environment and the home environment, and other factors that are within the environment such as stereotypic view, gender, location, and individual's self-concept.

Review of Related Studies

Karim (1990) conducted a study on "Self-Concept: A Cross Cultural Study of Adolescents." The sample consisted of 600 adolescents with age range of 13 to 19 years, and the area of study was in America. Thakur and Prasada's self-esteem inventory was used to measure self-concept of adolescents. The results revealed that sex variation had a significant impact on personality perception and self-concept. The females possessed more positive self-concept in comparison with the males. Furthermore, Patil (1994) carried out a study on sex role perception of adolescents as influenced by self-concept and achievement motivation. The sample consisted of 360 adolescent boys and girls studying in 8th, 9th and 10th standards with equal number of students from English and Kannada medium schools of Hubli and Dharwad city. The results revealed that sex role perception had significant positive relationship with self-concept. Ahmed (1998) carried out a study to explore the difference in boys' and girls' academic achievements. The study was conducted on 120 students belonging to the age group of 13 to 18 years studying in coeducation English medium institutions confined to the suburbs of Mumbai City in India. The instrument used for data collection was Shafi's achievement motivation scale. The findings revealed that influence of gender on achievement motivation was statistically not significant.

On the issue of the influence of gender on academic achievement and self-concept, Francis and Skelton (2005) explain that how students are encouraged or discouraged in

school subjects may be based on learning opportunities. Male students tend to receive more encouragement in sciences while females are nurtured more in arts. Gisela further asserted that parents are often gender biased, and this influences students' achievements. In a study carried out by Gurian and Stevens (2007) on the minds of boys, the findings, among others, indicated that boys receive both lower grades and the majority of failing grades, and they drop out of school 4 times more than girls. Boys are identified for disciplinary infractions as much as 10 times more than girls. This could be attributed to the orientation that children acquired from their parents in the process of development. According to Kauchak and Eggen (2011), the brains of male and female children are wired differently for learning. Their findings indicate that the components of the brain that focus on words and motor skills develop a year ahead for girls than for boys, thus giving the female child opportunities and advantages in reading and performing small motor tasks such as using pencils. In a similar study, Gurian and Stevens (2007) found that emotional centers in the brain are more advanced in female children, making them calmer and more able to sit steady for longer periods in the classroom situations than their male counterparts. Consequently, there are greater opportunities for female children to perform as much as the male children, if encouraged, and even better than their male counterparts. Devi and Mayuri (2003) found that girls were superior to boys in academic achievement.

In Nigeria, the issue of gender permeates different settings. It was reported in "UN Appeal for Girls' Education" (2006) that the African patriarchal societal view point favors boys over girls because boys maintain the family lineage. Research has shown that millions of girls do not have access to school despite the efforts to reverse the situation. Okeke, Nzewi, and Njoku (2008) identified child labor, poverty, lack of sponsorship, quest for wealth, bereavement, truancy, engagement of girls as house-helpers as some of the militating factors against girls' education in Nigeria. Above all, the scenarios presented above tend to indicate that there are conflicting research findings on the influence of gender and location on both the achievement and self-concept of students. This made this study focus on the influence of both gender stereotype and school location on academic achievement and self-concept of students. Some of the studies reviewed above did not look at the issue of self-concept and academic achievement. The locations, vis-à-vis urban and rural, were not reflected in most of the studies reviewed. These are what the present study hopes to find out.

Generally, the major purpose of the study is to investigate the influence of gender stereotype on students' self-concept and academic achievement in senior secondary schools. Specifically, the study intends to do the following:

1. Ascertain the influence of gender stereotype on senior secondary school students' self-concept,

2. Ascertain the influence of gender stereotype on senior secondary school students' academic achievement
3. Ascertain the influence of school location on senior secondary school students' self-concept.
4. Determine the influence of school location on senior secondary school students' academic achievement.

The following research questions guided the study:

Research Question 1: What is the influence of gender stereotype on senior secondary school students' self-concept?

Research Question 2: What is the influence of gender stereotype on senior secondary school students' academic achievement?

Research Question 3: What is the influence of school location on senior secondary school students' self-concept?

Research Question 4: What is the influence of school location on senior secondary school students' academic achievement?

The following null hypotheses were tested at the .05 level of significance:

Null Hypothesis 1 (H_{01}): Gender stereotype has no significant influence on self-concept of senior secondary school students.

Null Hypothesis 2 (H_{02}): Gender stereotype has no significant influence on academic achievement of senior secondary school students.

Null Hypothesis 3 (H_{03}): Location has no significant influence on self-concept of senior secondary school students.

Null Hypothesis 4 (H_{04}): Location has no significant influence on academic achievement of senior secondary school students.

Research Method

This study was carried out in Enugu state of Nigeria. Enugu state has six educational zones. The zones are Awgu, Enugu, Obollo-Afor, Agbani, Udi, and Nsukka. In all, there are 277 government-owned secondary schools or public secondary schools. The researchers decided to choose Udi Education Zone because it is one of the areas where preference has been made on boys' education over girls. Besides, girls are always encouraged to get married as early as possible.

The population of the study comprised all the 2013-2014 senior secondary class two (SSII) students with the population of 3,303.

The ex post facto research design was adopted for this study. Nworgu (2006) and Nwana (2003) noted that this research design seeks to establish cause-effect relationships,

and the researchers have no control over the variables under study and therefore cannot manipulate the variables. Ex post facto research design is a method that can be applied instead of an experiment, to test hypotheses about cause and effect in situations where it is impossible to control or manipulate the dependent variable or the independent variable (Lord, 1973). It was noted that researchers can only report what has happened and examine the data retrospectively to establish causes, relationships and associations, and their meanings (Cohen, Manion, & Morrison, 2011; Punch, 2011). Both school location and student's gender are variables that cannot be controlled by the researchers, and so their influence on students' achievement and self-concept were investigated.

Sampling Procedure

The researchers adopted multi-phase sample. This is one of the probability sampling techniques in which every member of the wider population has an equal chance of being selected in the sample study. Inclusion or exclusion from the sample is a matter of chance (Cohen et al., 2011). Besides, multi-phase samples have less risk of bias.

A sample of 342 SSII students comprising 228 males and 114 females made up the sample of the study. In sampling, the researchers adapted the National Education Association Technique in Krejcie and Morgan (1970) for determining the sample size. This technique states that when the population is between 3,000 and 3,500, the sample size should be between 341 and 346. Therefore, going by the number, the 342 sample size falls within the range of sampling. The locations of the schools were considered. This means that the schools located in both urban and rural areas were sampled and used for the study. Specifically, in a multi-phase sample, the selection is done in phases, and the purposes change at every particular phase. For the purpose of this study, the selection was done on location of school and gender bases. The multi-phase sampling technique was used in selecting the sample for the study. First, the selection of one out of the six education zones in Enugu State was done. Second, nine schools were selected: three boys' schools, three girls' schools, and three coeducational schools (for boys and girls). From each of the three boys' schools, 56 boys were selected. From each of the girls' schools, 27 girls were selected. In the three coeducational schools, 60 males and 33 females were selected. Altogether, there were 228 male and 114 female students who made up the sample used for the study. These made up the total sample size of 342 SSII students. The choice of SSII students was informed by the fact that the students fall within the age range of middle adolescents, which corresponded with the application of Marsh's Self Description Questionnaire II [Strongly Disagree(SD)QII], which was adapted by the researchers for the present study.

Instrumentation

Two instruments were used in carrying out the study: Students' Stereotype Self-Concept Questionnaire (SSSCQ) and Student Mathematics Achievement Test (SMAT). SSSCQ was adapted by the researchers after reviewing, extensively, related literature. The researchers adapted Marsh's SDQII from Marsh's Self Description Questionnaire (SDQ) for this study. The instrument that was adapted for this study is Marsh's SDQII. Marsh's SDQ was designed or developed by Marsh (1988), and it is based on the Shavelson, Hubner, and Stanton (1996) hierarchical and multi-dimensional model. It is a multi-dimensional self-concept instrument that has been extensively psychometrically validated. It is divided into three versions. Version I (SDQ I) is basically for primary schools, and it is used to measure self-concept of the adolescents. Version II (SDQ II) is for secondary schools and is used for early to the middle adolescents. Neill (1991) noted that the overall rating of SDQ II is 8/10. Version III (SDQ III) is basically for late adolescents and young adults. Generally, SDQ comprises 8 to 12 self-concept scales. The SDQ II, which is the area of interest of the present study, specified how students feel about themselves in 11 areas. These areas include physical abilities, physical appearance, relations to peers of the opposite sex, relations to peer of the same sex, relations to parents, honesty, emotional stability, mathematical ability, academics in general, and global self-concept (Wenglinsky, 1996). For the present study, the researchers focused on 4 out of Marsh's 11 dimensions. These include physical appearance, relations with parents, emotional stability, and global self-concept. The areas that were eliminated are not relevant to the present study, which focuses on gender stereotype and self-concept. The SSSCQ was adapted basically from the four dimensions. The four scales that were related to the present study were pulled together into one scale. The researchers were able to abstract and modify 20-item statements to suit the present study. Four items were taken from physical appearance and emotional stability, respectively, while six items were abstracted from relations with parents and another six from global self-concept. These four scales that were related to the present study were pulled together into one scale. In structuring the item statements, the following levels were applied: *strongly agree* (SA), 4 points; *agree* (A), 3 points; *disagree* (D), 2 points; and *strongly disagree* (SD), 1 point.

SMAT was the second instrument used by the researchers. The instrument was developed by the researchers with the help of two qualified mathematics teachers in senior secondary schools and a professional from the department of science education (mathematics education). This was done after the review of relevant literature. The instrument was a 10-item statements which were generated from three content areas of SSII mathematics syllabus which include probability, sequence, and trigonometry. In developing the instrument, the researchers used test blue print as a guide. The

objectives of the contents were considered. The questions in the three content areas were classified into two: lower and higher order questions. A four-point rating scale ranging from SA = 4, A = 3, D = 2, and SD = 1 was adopted. Any response with a mean score of 2.5 and above was considered as "agree" or acceptable while responses below the mean score of 2.5 were considered as "disagree" or not accepted.

Validity and Reliability

The students' stereotype self-concept questionnaire was face validated by three experts, from educational psychology, special education, and measurement and evaluation. The experts' suggestions were used in improving the instrument. The SMAT was equally face and content validated. The face validation was done by three experts; two teachers from senior secondary school and one from the department of science education (mathematics education). The experts' views helped in adjusting the instrument. For content validation, the table of specification according to Bloom's (1956) *Taxonomy of Educational Objectives* was used. The instrument was validated based on the purpose of the study, research questions, and the hypotheses. The experts were asked to check the language used in constructing the questionnaire, and to clarify the adequacy of the items and the relevance of the instrument to the topic of the study. The corrections were effected based on the suggestions made by the experts.

To ascertain the reliability of the instruments, 20 copies of the students' stereotype self-concept questionnaire and 20 copies of the Mathematics Achievement Test were subjected to trial testing in four secondary schools in Owerri North Local Government Areas in Imo State, which is not part of the study area. Cronbach's alpha procedure was used to estimate the internal consistency of the instruments, and reliability coefficients of 0.82 and 0.78 were obtained from Students' Stereotype Self-Concept Questionnaire and Mathematics Achievement Test, respectively. In analyzing the data, means and standard deviations were used for the research questions, while *t*-test statistic was applied in testing the hypotheses to generalize findings from the data.

Results and Discussion

Research Question 1

What is the influence of gender stereotype on secondary school students' self-concept?

The results presented in Table 1 shows that the mean response of male students on self-concept was 3.20, with a standard deviation of 0.25, and a mean of 2.85 with a standard deviation of 0.29 for female students. The difference between the mean response of male and female students was 0.35. This indicates that gender stereotype appears to have some influence on male and female students' self-concept.

Table 1. Independent *t*-Test Analysis of the Influence of Gender Stereotype on Secondary School Students' Self-Concept.

Gender	<i>n</i>	\bar{X}	sd	<i>df</i>	t_{cal}	Sig.	Decision
Male	228	3.20	0.25	340	11.05	.00	S
Female	114	2.85	0.29				

Note. $\alpha = 0.05$. *n* = number; \bar{X} = mean; *SD* = standard deviation; *df* = degree of freedom; t_{cal} = *t*-calculated; sig. = significance; S = significant.

Table 2. Independent *t*-Test Analysis of the Influence of Gender Stereotype on Secondary School Students' Academic Achievement in Mathematics.

Gender	<i>N</i>	\bar{X}	sd	<i>df</i>	t_{cal}	Sig.	Decision
Male	228	74.48	7.27	340	2.77	.01	S
Female	114	71.80	9.62				

Note. $\alpha = 0.05$. *n* = number; \bar{X} = mean; *SD* = standard deviation; *df* = degree of freedom; t_{cal} = *t*-calculated; sig. = significance; S = significant.

Ho₁

Gender stereotype has no significant influence on self-concept of secondary school students.

Table 1 also revealed that a *t*-test value of 11.05 was obtained with associated probability value of .00. As the associated probability (.00) was less than .05, *Ho₁* was rejected. It was therefore concluded that gender stereotype has significant influence on self-concept of secondary school students in favor of male students.

Research Question 2

What is the influence of gender stereotype on secondary school students' academic achievement in mathematics?

The result presented in Table 2 shows that mean achievement score of male students on mathematics was 74.48 with a standard deviation of 7.27, and a mean of 71.80 with a standard deviation of 9.62 for female students. The difference between the mean response of male and female students was 2.68. This indicates that gender stereotype seems to have some influence on male and female students' academic achievement.

Ho₂

Gender stereotype has no significant influence on academic achievement of secondary school students in mathematics.

Table 2 also revealed that a *t*-test value of 2.77 was obtained with associated probability value of .01. As the associated probability (.01) was less than .05, *Ho₂* was rejected. It was therefore concluded that gender stereotype has significant influence on academic achievement of secondary school students in mathematics in favor of males.

Research Question 3

What is the influence of school location on secondary school students' self-concept?

The result presented in Table 3 shows that the mean response of urban-based students on self-concept was 3.01 with a standard deviation of 0.23, and a mean of 2.95 with a standard deviation of 0.36 for rural-based students. The difference between the mean response of urban and rural students was 0.06. This indicates that school location appears to have similar influence on urban and rural students' self-concept.

Ho₃

School location has no significant influence on self-concept of secondary school students.

Table 3 equally revealed that a *t*-test value of 1.54 was obtained with associated probability value of .12. As the associated probability (.12) was greater than .05, *Ho₃* was not rejected. It was therefore concluded that school location has no significant influence on self-concept of secondary school students.

Research Question 4

What is the influence of school location on secondary school students' academic achievement in mathematics?

The result presented in Table 4 shows that the mean achievement score of urban students in mathematics was 78.82 with a standard deviation of 5.58, and a mean of 67.78 with a standard deviation of 7.64 for students in the rural schools. Going by the scores, the difference between the mean response of urban and rural students was 11.04. This indicates that school location appears to have some influence on urban and rural students' academic achievement.

H4

School location has no significant influence on academic achievement of secondary school students.

Table 4 also revealed that a *t*-test value of 13.74 was obtained with associated probability value of .00. As the associated probability (.00) was less than .05, *Ho₄* was

Table 3. Independent *t*-Test Analysis of the Influence of School Location on Secondary School Students' Self-Concept.

Location	<i>N</i>	\bar{X}	<i>sd</i>	<i>df</i>	t_{cal}	Sig.	Decision
Urban	221	3.01	0.23	340	1.54	.12	NS
Rural	121	2.95	0.36				

Note. $\alpha = 0.05$. *n* = number; \bar{X} = mean; *sd* = standard deviation; *df* = degree of freedom; t_{cal} = *t*-calculated, sig. = significance; NS = not significant.

Table 4. Independent *t*-test Analysis of the Influence of School Location on Secondary School Students' Academic Achievement in Mathematics.

Location	<i>N</i>	\bar{X}	<i>sd</i>	<i>df</i>	t_{cal}	Sig.	Decision
Urban	221	78.82	5.58	340	13.74	.00	S
Rural	121	67.78	7.64				

Note. $\alpha = 0.05$. *n* = number; \bar{X} = mean; *sd* = standard deviation; *df* = degree of freedom; t_{cal} = *t*-calculated; sig. = significance; S = significant.

rejected. It was therefore concluded that school location has significant influence on academic achievement of secondary school students in mathematics.

Discussion

Generally, the research question that guided the study focused on the influence of gender stereotype in relation to academic achievement and self-concept of students. The results of the study confirmed the suspicion the researchers had, that is, the possibility of gender stereotypic views of parents and teachers encouraging male children with particular courses and discouraging female children in the same courses, thus influencing their academic achievement. In the long term, this might equally affect their self-concept. This is in line with Steele et al. (2002), who found that stereotypic views manifest underachievement on the part of females and affect their self-concept. The findings also corroborate the findings of Vescio et al. (2005) who found that powerful application of stereotype is related to female weaknesses and strengths. Therefore, the use of stereotypic views could be responsible for the manifestation of male and female achievements in mathematics. It could have equally affected their self-concept.

However, the influence of location on the academic achievement of students is in favor of those in urban areas. This could be attributed to the network of opportunities that are easily found in urban areas. In most rural areas, there is no rural electrification, and this makes it impossible for children in rural areas to study beyond the knowledge information acquired from their parents and classroom teachers. The possible academic superiority achieved by children in the urban areas may also be due to the exposure to extra classes that are not usually available to the children in rural areas. In line with this, Mangal (2010) found that environmental or location forces, especially the home, neighborhood, and school atmosphere, significantly influence the educational attainment of students. Another possible factor could be as a result of poverty, which creates opportunities for withdrawing the female children from school, while allowing their male counterparts

to continue. This is in line with Okeke et al. (2008), who identified the poor performance of female students as partly a result of engaging the girls as "house helps" and child laborers, and thus withdrawing the girl child from school as a result of poverty. For Mangal (2010), girls are left to perform mostly as domestic workers. Therefore, in the process of helping out with many household chores or to augment the family income, female children devote less time to their studies, creating opportunities for poor academic achievement. When a child is withdrawn from school for a long time, meeting up with others in the same class becomes almost impossible for the withdrawn child.

It has also been found that there is little difference in the mean self-concept for the students from urban school and those from the rural schools. The mean self-concept of those from the urban school is higher than that of students from rural schools. The analysis of the mean differences in location with regard to self-concept indicates that location has no significant influence on the students' self-concept. This agrees with the findings of Karim (1990), who observed that a significant difference exists between urban and rural students' self-concept. Students from rural areas had higher self-concept than students from urban areas. The study also revealed that there is difference in the mean achievement scores for the students from urban schools and those from rural schools. The mean achievement of those from the urban schools is higher than those in the rural schools. The analysis of the mean shows that location has no significant influence on academic achievement. The findings are in line with the assertion of Karim (1990), who found that children in the rural areas are not so much acquainted with mechanical toys, amusement parks, electrical gadgets, books from public library, newspapers and periodicals, television, and film shows. These are known to enrich the education of children in urban areas and thus may influence their achievement. The study also revealed that male students have higher mean self-concept than their female counterparts. The analysis of the mean shows that there is no significant influence of gender on self-concept. This is in line with the finding of Steele et al.

(2002). Furthermore, it was revealed that female students have higher mean achievement scores than their male counterparts. The analysis of the mean shows that gender has no significant influence on students' academic achievement.

In relation to Bandura's (1977) social learning theory, it is evident that human beings are "social animals," and this can affect them positively or negatively depending on the stereotypic view, which individuals are brought up with. Individuals learn by modeling, and one can only model what he or she has come across. This could affect the self-concept and academic achievement based on gender stereotype that manifest within the individual environments. This is in line with Vescio, Gervais, Snyder and Hoover (2005) findings that powerful or very strong stereotyping is related to students' low or high self-concept and poor or high academic achievements.

Conclusion

The findings of this study show that gender stereotypic views have facilitative influence on secondary school students' self-concept and academic achievement. Stereotype is a generalization that has to do with the characteristics of a group of people. It is usually known for segregation between one group of people and the other showing superiority over one group against the other. G. N. Martin et al. (2007) noted that stereotyping members of a group negatively may pose a cognitive and emotional burden that can impede performance and consistently yield negative expectations. From the findings, gender stereotype has, as a result, denied female students the right and privileges they should have enjoyed. Rather, it has led to poor academic achievement. Self-concept is the collection of one's self-image, feelings or emotions, and beliefs. It is the way individuals perceive themselves, which includes their past and present experiences. All these, put together, affect individuals positively or negatively, depending on the angle the stereotyping individuals found themselves. Generally, the results revealed that gender stereotype has significant influence on academic achievement of students. The conclusion from the findings indicated that both self-concept and location have no significant influence on the students.

Limitations of the Study

Usually, no study goes without some limitations. The following were observed by the researchers as limitations to the present study:

- The study focused on public or government schools, to the exclusion of private schools run by individuals and religious organizations. This may have consequences for the generalization of the findings.
- The study was conducted in Enugu State, which is 1 of the 36 states in Nigeria. Perhaps using 2 or 3 more states in the country may be better so as to broaden the scope of the study.

In spite of these limitations, the findings strongly indicate that gender stereotyping made a difference in self-concept and academic achievement among secondary school students in favor of the male students.

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