

INFLUENCE OF GENDER AND GEOGRAPHICAL LOCATION OF SCHOOL ON ACADEMIC PERFORMANCE OF STUDENTS IN ASANTE AKIM, GHANA

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Abstract

The study investigated influence of gender and location of school on the academic performance of students in the Ashanti Akim North District. The descriptive survey design was used for the study. Purposive and proportional sampling techniques were used to select 297 from a population of 1292 students to respond to the Academic Performance Tests in the Four Core Subjects. Data were collected using achievement tests in Mathematics, English Language, Social Studies and Integrated Science whose reliabilities were respectively 0.75, 0.80, 0.78 and 0.76. Data were analysed using the Independent Sample t-test. Findings of this study suggest that location and sex determined students' academic performance. The study among others recommends that attention should be focused on male students to catch up academically with their female counterparts. Again, to bridge the dichotomy in urban rural students' performance, the Ministry of Education together with the District Education Directorate and the District Assembly should upgrade the facilities and provide learning resources in junior high schools in the rural areas to the standards of schools in the urban areas.

Keywords: Influence, Sex, Geographical Location, Academic Performance,

🔊 Introduction

The question of gender differences in academic performance has been debated for some time now. Many reasons have been offered as causes of perceived gender differences in learning. Slavin, (2009) indicated that these differences may not be attributed to only biological predisposition but to other factors such as cultural expectations and norms. Most cultures in Africa provide different experiences to the two sexes and consequently different opportunities and motivation for learning. The consensus of a large body of research is that no matter what the inherent biological differences, many of the observed differences between males and females can be linked to differences in early socialization experiences (Slavin, 2009). The socialization process in some societies is somewhat rigid and gender differences are emphasized. It is not uncommon to see gender stereotypes manifested in the day-to-day social sex roles that are assigned to males and females. It may therefore, not be surprising that the school being a microcosm of society may consciously or unconsciously perpetuate gender stereotypic behaviours.

It has been reported that teachers consciously or unconsciously often mete out differential treatment to boys and girls in their classrooms (Afuwape & Oludipe, 2008). Block as cited in Sprinthall, Sprinthall and Oja (1994) provided evidence that showed a large array of different expectations that favoured boys. According to her teachers interacted more favourably with boys and gave them more positive feedback while directing more criticism at girls. Block's assertion harmonises with the report of Mari (2007) that teachers spoke more frequently to boys, asked boys higher-order questions and praised them for quality work done. Block as cited in Sprinthall et al (1994:402) in a study reported, "Girls in high achievement condition received the lowest level of supportive, ego-enhancing feedback, they also received significantly fewer laudatory attribution statements and significantly more disparaging attribution statements". Block further noted that teacher negative expectancies can be found at all levels from nursery school to college. In pre-school according to her, boys receive more attention. In college, female intellectual aspirations are taken less seriously by professors. These expectations and the discouragement and denigration of female academic effort may have in Block's words "pernicious effects" (Block as cited in Sprinthall, et al 1994:402).

Ausubel and Robinson as cited in Balarabe and Abdullahi (1996:83-84) exemplified the effects of different social sex roles on academic achievement. They argued that:

The quite differential social sex roles of boys and girls at all age levels have important effects on their respective adaptations to the school environment ... Beginning in middle adolescence cultural expectations change gradually. Academic achievement becomes a more acceptable male virtue. The female student soon comes to believe that the ability to solve problems in mathematics, science or logic is a uniquely masculine skill. This inevitably makes her motivation to attack such problems quite low. Thus an intelligent female who wants approval from peer group, and realizes that very high scholastic performance is not likely to enhance her popularity, adopts a level of aspiration beneath her real potential.

The views of Ausubel and Robinson are consistent with the assertion by Afuwape and Oludipe (2008) that students regard mathematicians and scientists as a special group of people. On this premise, they explained that female students do not see themselves as having the potential of becoming mathematicians and scientists. Malik, Ngban, and Ibu, (2009) submitted that, "members of each sex are encouraged in and become interested in and proficient at, all kinds of tasks that are most relevant

to the roles they currently or are expected to play in future". Studies have shown that attitudes play a significant role in gender differences in academic achievement. Opolot-Okurut (2010) found that for all the attitudinal variables (anxiety, confidence and motivation), males had higher mean scores than females. That is, differences in student attitude towards mathematics based on gender were confirmed. Opolot-Okurut explained that attitudes are known to have positive relationship with student achievement and as such males performed better than females in mathematics because of their higher attitude scores.

Findings reported by Brunner, Keller, Hornung, Reichert and Martin (2009) confirming the typical pattern of gender differences in domain-specific academic self-concepts across age groups (that is higher verbal self-concept for girls and higher mathematics self-concept for boys) support this explanation. However, other studies have drawn a more differentiated picture. In their longitudinal study from grade 1 to grade 12, Jacobs et al, as cited in Brunner et al (2009) observed gender differences in mathematics self-concept to vanish over time, whereas gender differences in verbal self-concept increased in favour of females until grade 9, from which point on they seemed to decrease.

Skaalvik and Skaalvik as cited in Dramanu and Balarabe (2013) examined the gender differences in academic self-concept and academic achievement of 907 secondary immigrant and non-immigrant adolescents. The study revealed that female immigrants and non-immigrants tended to have significantly higher English self-concept and English grades, while male immigrants and non-immigrants tended to have significantly higher mathematical self-concept and mathematics grades.

These findings on Skaalvik and Skaatvik (2004) were supported by Manger and Eikeland (2006). In their study of the effects of mathematics self-concept on girls' and boys' mathematical achievement, Manger and Eikeland found that Norwegian elementary school boys showed significantly higher mathematics self-concept than girls. Boys also had significantly higher mathematical achievement scores than girls. However, controlling for mathematics self-concept produced several interesting results. First, there was no significant effect of gender on overall mathematical achievement. Second, although the gender difference in achievement favouring boys increased with increasing task difficulty, no significant effects of gender were found in sub-sample of difficult tasks. Finally, a significant effect of gender favouring girls appeared in sub-samples of easy tasks and in reutilising well-defined procedural tasks. These results indicated that mathematics performance is an important variable accounting for differences in elementary school girls and boy's mathematical achievement.

Studies on whether academic performance is influenced by gender have produced varied results. Whilst some established gender differences in academic performance, others did not. In a study Dramanu and Balarabe (2013) established a significant difference in the academic performance of male and female students from Ghanaian Junior High School. Dramanu and Balarabe stated that the gender of students correlated with the academic performance of students. Male students in the Junior High Schools in Ghana used for the study performed better than their female counterparts.

In another study Balarabe and Abdullahi as cited in Dramanu and Balarabe, (2013) did not find any differences in performance on the grounds of gender. The results of their study revealed that at both the university staff school and the Local Education Authority Primary Schools no significant differences existed in the academic achievement by gender ($X^2 = 2.547$, $df = 2$, $p = 0.28$; $X^2 = 0.481$, $df = 2$, $p = 0.786$) respectively. At the secondary and university levels, the results of the study were also not significant ($t = -1.789$, $df = 303$, $p = 0.077$, and $t = 0.15$, $df = 136$, $p = 0.880$ respectively).

These findings of Balarabe and Abdullahi (1996) agreed with the results of a study conducted by Nuthanap (2007). Nuthanap found no significant difference in the academic performance of boys and girls. The results showed that both boys and girls performed on the same level on academic achievement. Nuthanap (2007) explained that the result of the study might be because of present

day competitive education in which parents provide equal opportunities and encouragement to both boys and girls. According to Nuthanap, this naturally enhanced the level of aspiration, expectation which ultimately increases the competitive spirit between boys and girls. The research findings of Ariyo (2011) which indicated that a student's gender did not have any influence on the student's performance in physics was in line with the findings of Balarabe and Abdullahi (1996). However, Nuthanap (2007) study findings contradicted the findings of Ariyo (2011) that the gender of a student exerted causal influence on achievement in physics both directly and indirectly.

Hyde and McKinley (1997) summarized the results of forty-four meta-analysis of gender differences and similarities. In most areas, including mathematics ability, communication and aggression, gender differences were either non-existent or small. The report of Zembar and Blume (2009) was inconsistent with the findings of Hyde and McKinley (1997). In a study, Hughes, Luo, Kwok and Loyd, (2008) reported that in late elementary school, females out-performed males on several verbal skills'; verbal reasoning, verbal fluency, comprehension, and understanding logical relations. Males on the other hand, out-performed females on spatial skills tasks such as mental rotation, spatial perception and spatial visualization.

In another study using visually impaired students in Kenya, Were, Indoshi and Yalo (2010) found that females performed better than their male counterparts. Using the grouped frequency formula, Were, et al (2010) found a mean score of females to be 60.864% while the male's mean score was 57.855%. When a further analysis was done on the calculation of the variance and standard deviation of the two groups, males had a variance of 18.243 and a standard deviation of 4.271. The females on the other hand, had a variance of 14.692 and a standard deviation of 3.833. This information revealed that the female students performed better on the achievement test than their male counterparts.

The results of the study of Were, et al (2010) harmonized with the findings of Brown and Kanyongo (2010) who examined the performance of mathematics items of students in Germany. In their study they compared gender differences in overall mathematics ability and specific mathematics ability. They found that girls slightly outperformed boys on reasoning ability but on specific mathematics ability, boys had a significant advantage over girls. Studies have also found that males score higher than females on tests of general knowledge, mechanical reasoning and mental rotations. Females on the other hand scored higher on language measures, including reasoning, writing assessment, (Slavin 2009) and on attention and planning tasks, (Warrick & Naglieri as cited by Slavin, 2009).

Contradictory findings were found in academic performance between male and female students, studies on whether location of school influenced academic performance were also reviewed. In a study by Dramanu and Mohammed (2017), they established a significant difference in the academic performance of students from Urban and Rural Junior High Schools in Ghana. Dramanu and Mohammed stated that there were differences in the academic performance of students on the basis of location of schools (urban and rural). Students from Urban Junior High Schools had the tendency to perform better academically than their counterparts from Rural Junior High Schools.

Similarly, Owoeye and Yara (2011) found a significant difference in the academic performance of students from urban and rural secondary schools ($t = 2.23$, $df = 48$, $P < 0.05$). The results of their study showed that students from urban secondary schools had a mean score of 1.9619, while students from rural secondary schools had a mean score of 1.7207. This shows that students from urban secondary schools performed better than their counterparts from rural secondary schools. The findings of this study are consistent with the results of a study conducted by Adepoju (2008) in Oyo. In this study Adepoju found a significant difference in the academic performance of students from urban and rural schools ($t = 2.14$, $df = 98$, $P < 0.05$). While students from urban schools had a mean score of 161.196, their counterparts in rural schools had a mean score of 126.102.

Adeyemi (as cited in Dramanu and Mohammed (2017) in a study in Ondo and Ekiti States of Nigeria found that students from urban schools in the two states performed better than their colleagues from rural schools (chi-square value of 182.62 was greater than the table chi square value of 3.841 at 0.05 level). His analysis of the 2009 senior secondary certificate examination showed that while a total of 17,068 students from urban schools scored credits and above, 10,538 students from rural schools scored credits and above. This shows that a greater number of students from the urban schools performed better than their counterparts from rural schools.

These findings by Adeyemi (2011) were congruent with the findings of Etsey (2009). In his study in four regions of Ghana, Etsey (2009) analysed the 2006 Basic Education Certificate Examination (BECE) in selected districts in these regions (Western, Eastern, Greater Accra and Northern). His analysis revealed that students from urban schools in these regions performed better in Mathematics and English than their counterparts in rural schools. The analysis showed that students from urban schools had a mean score of 56.6 in Mathematics and 55.2 in English while their counterparts had a mean score of 49.8 in Mathematics and 42.1 in English. Etsey (2009) thus concluded that children in urban districts performed better by 11 percentage points in English and 9 percentage points in Mathematics in the BECE than their rural counterparts.

The findings of Adeyemi (2011) and Etsey (2009) were in contradiction with the findings of Malik, Ngban and Ibu (2009) who in a study in Bayelsa State of Nigeria interestingly found students from rural schools against all odds performed better in Mathematics than their counterparts from urban schools ($t = 12.51$, $df = 598$, $P < 0.05$). Their findings showed that while students from rural schools had a mean score of 31.81, their urban counterparts had a mean score of 25.36. In an attempt to find out how the neighbourhood affected the academic performance of boys and girls; researchers have reported greater effects of the neighbourhood on boys than girls. The reason for this difference according to the researchers may result from the fact that boys spend more time in the neighbourhood than girls (Leventhal & Brooks-Gunn, 2000).

Looking at the varied, conflicting and inconsistent array of findings from the literature, it became imperative, therefore, to also examine the dynamics of how gender and geographical location of school influenced the academic performance of students in the Ashanti Akim North District where such literature is not in existence. Previous studies tended to focus on other African countries and those conducted in Ghana also focused on Districts other than the Ashanti Akim North District. For instance, studies by Etsey (2009); Dramanu and Balarabe (2013) and Dramanu and Mohammed (2017) which were conducted on gender and location of students were all conducted at various Districts of the country other than the Ashanti Akim North District. This current study attempts to fill this research gap.

Purpose of the Study

This study examined the influence of sex and location of school on academic performance of students in the Asante Akim North District.

Specifically, it examined:

1. whether there were differences between the academic performance of male and female students in the Asante Akim North District.
2. whether location of students (rural/urban) influenced academic performance of students in the Asante Akim North District.

Hypotheses

H₀: There is statistically no significant difference between the academic performance of male and female students in the Asante Akim North District.

H_A: There is statistically significant difference between the academic performance of male and female students in the Asante Akim North District.

H₀: There is statistically no significant difference between the academic performance of students in rural and urban public schools in the Asante Akim North District.

H_A: There is statistically significant difference between the academic performance of students in rural and urban public schools in the Asante Akim North District.

Methodology

The study investigated influence of sex and location of school on academic performance of Junior High School students in the Ashanti Akim North District. The descriptive survey design was used for the study. A sample of 297 JHS Form Two students was selected from 12 public junior high schools through multistage sampling technique using circuits, sex and location as criteria for selection. The participants were composed of 144(48.5%) males and 153(51.5%) female students. Out of the 297 students, 228 (76.8%) students were from urban schools and 69 (23.2%) were from rural schools.

First, all public Junior High Schools in the Ashanti Akim North District totalling 48 were already put into eight circuits. Six circuits out of eight were purposively selected for the study. These circuits were selected because they had both rural and urban areas for comparison purposes. Two schools each from the six circuits; one from rural area and the other from urban centre were randomly selected. This was so because the schools found in rural areas had similar characteristics so as those in urban centres. In all 12 schools; 6 from rural areas and 6 from urban centres were used for the study.

In selecting the students for the study, the proportional sampling technique was used. The researchers divided the junior high school Form Two students' population of each selected school by the total population of all the Junior High School form two students in the selected schools and multiplied it by the total sample size needed for the study. This helped the researchers to obtain a proportional representation from the participating schools. The researchers adopted this sampling technique because it was observed that the schools found in urban centres had greater form two (2) students than those in the rural areas.

After obtaining the total number of students to be selected from each school, they were put into two groups (male and female). The researchers then used the lottery sampling method to select a proportional number of boys and girls from each school. This was done by letting both boys and girls pick yes or no papers separately. This sampling procedure was used because there was the need to select a proportional number of males and females to participate in the study. Students who picked yes were used for the study in each school.

Academic performance tests in Mathematics, English Language, Social Studies and Integrated Science were used for the study. These subjects were selected because they were the core subjects taught at the Junior High Schools in Ghana. The Academic performance test items were constructed by the Centre for Performance Monitoring and Evaluation, a consultancy centre in Accra and were based on the junior high school Form Two syllabus. These test items were in multiple-choice item format with four options. Both Mathematics and English tests consisted of 30 items each, the remaining two subjects consisted of 25 items each. The participants were expected to respond to the Mathematics and English test items in 45 minutes and the remaining two subjects used 30 minutes. The mean score of each student in the four subjects was computed and used as proxy for academic performance.

The test in Mathematics and English Language were administered first after which the Social Studies and Integrated Science test were administered. Each of the tests was scored out of 100 and the mean score of each participant in the four (4) tests was computed and used as proxy for academic performance.

Result

Table 1: *Demographic Variables of the Respondents (N=297)*

| S/N | Variables | Frequency | Percentage (%) |
|-----|---------------------------|-----------|----------------|
| 1 | Sex | | |
| | Male | 144 | 48.5 |
| | Female | 153 | 51.5 |
| 2 | Location of School | | |
| | Rural | 69 | 23.2 |
| | Urban | 228 | 76.8 |
| 3 | Age | | |
| | Below 14 | 181 | 60.9 |
| | Above 14 | 116 | 39.1 |

Source: Field Survey, (2018)

From Table 1, out of 297 respondents, 144 (48.5%) were males whereas 153 (51.5%) were females. This means that there is a slight female dominance over male students in the Ashanti Akim North District. Moreover, the majority of the respondents 228 (76.8%) were found in urban centres in the district whereas 69 (23.2%) were from rural areas. This result suggests that the form two students' population in urban areas in the district is greater than those in the rural areas hence the need to adopt the proportional sampling procedure. Again the ages of students were put into two categories; below 14 years and those who were 14 years and above. The result indicated that students below 14 years were 181 (60.9%) whereas those who were 14 years and above were 116 (39.1%). The implication is that majority of form two students in the Ashanti Akim North District are below 14 years.

Hypothesis one was tested using the independent samples t-test. In using the independent samples t-test, the Levene's test for homogeneity of variance was done first. The result is presented in Table 2.

Table 2 – *Levene's Test for Equality of Variances*

| | F | Sig |
|-----------------------------|-------|------|
| Equal variances assumed | 1.642 | .218 |
| Equal variances not assumed | | |

Source: Field Survey (2018)

From Table 2, it is seen clearly that the significant value of 0.218 is greater than .05 the significant level. This implies that equal variances can be assumed. Therefore, the assumption of homogeneity of variances is met.

The results of the independent samples t-test are presented in Table 3.

Table 3: *Independent Samples t-test of Academic Performance of Male and Female Students*

| Variable | N | M | SD | t-value | Df | p-value |
|----------|-----|-------|-------|---------|-----|---------|
| Male | 144 | 49.10 | 11.44 | | | |
| | | | | 2.290 | 295 | .006* |
| Female | 153 | 50.79 | 11.18 | | | |

Source: Field Survey, (2018) * Significant, $p < 0.05$

The findings from Table 3 show that Female students ($M=50.79$, $SD=11.18$) performed higher than Male students ($M=49.10$, $SD=11.44$). In addition, the t-value from the results was 2.290 and a p-value of 0.006. The analysis, therefore, showed a statistically significant difference between the academic performance of male and female students in the Ashanti Akim North District. The null hypothesis which states that there is no statistically significant difference between the academic performance of males and female students in the Ashanti Akim North District is therefore rejected. It could be concluded that there is a statistically significant difference between the academic performance of male and female students in the Ashanti Akim North District. Female students performed better than their male counterparts.

Hypothesis two was tested using the independent samples t-test. Again the result of the Levene's test for homogeneity of variance is presented in Table 4.

Table 4 – *Levene's Test for Equality of Variances*

| | F | Sig |
|-----------------------------|-------|------|
| Equal variances assumed | 1.580 | .214 |
| Equal variances not assumed | | |

Source: Field Survey (2018)

From Table 4, the significant value of 0.214 is greater than .05 the significant level. This implied that equal variances could be assumed. Therefore, the assumption of homogeneity of variances is met.

The results of the independent samples t-test are shown in Table 5.

Table 5: *Independent Samples t-test of Academic Performance of Students from Rural and Urban Areas*

| Variable | N | M | SD | t-value | Df | p-value |
|----------|-----|-------|-------|---------|-----|---------|
| Rural | 69 | 38.19 | 6.32 | | | |
| | | | | 12.025 | 295 | .000* |
| Urban | 228 | 53.54 | 10.00 | | | |

Source: Field Survey, (2018) * Significant, $p < 0.05$

The findings from Table 5 indicate that students from urban schools ($M=53.54$, $SD=10.00$) performed higher than students from rural schools ($M=38.19$, $SD=6.32$). Further, the data showed a t-value of 12.025 and a p-value of 0.000. The analysis showed a statistically significant difference between the academic performance of students in rural and urban public schools. The study therefore failed to accept the null hypothesis "there is statistically no significant difference between the academic

performance of students in rural and urban public junior high schools. This finding suggests that students from urban schools performed better than their counterparts in rural schools.

Discussion

The study found a statistically significant difference in academic performance between male and female students in the Ashanti Akim North District. The result of the study revealed that female students performed better than their male counterparts. This result is in line with Were, Indoshi and Yalo (2010) who established a significant difference in the academic performance of male and female students in Kenya. Were, et al (2010) found that females performed better than their male counterparts. Using the grouped frequency formula, they found a mean score of females to be 60.864% while the male's mean score was 57.855%. When a further analysis was done on the calculation of the variance and standard deviation of the two groups, males had a variance of 18.243 and a standard deviation of 4.271. The females on the other hand, had a variance of 14.692 and a standard deviation of 3.833. This information revealed that the female students performed better on the achievement test than their male counterparts.

The results of the study of Were, et al (2010) harmonised with the findings of Brunner, Krauss and Kunter as cited by Brown and Kanyongo (2010) who examined the performance of Mathematics items of students in Germany. In their study they compared gender differences in overall Mathematics ability and specific Mathematics ability. They found that girls slightly outperformed boys on reasoning ability.

Again, the results of the study showed a statistically significant difference between the academic performance of students in rural and urban public junior high schools. The results showed that students from urban schools performed better than their counterparts from rural schools. The result is consistent with Ajayi, (2013) who found a statistically significant difference between the academic performance of students in urban and rural public junior high schools. Dramanu and Mohammed (2017) also established a significant difference in academic performance of students from Urban and Rural junior high schools in Ghana. Dramanu and Mohammed stated that there were differences in the academic performance of students on the basis of location of schools (urban and rural). Students from Urban junior high schools had the tendency to perform better academically than their counterparts from Rural Junior High Schools. Similarly, Owoeye and Yara (2011) found a significant difference in the academic performance of students from urban and rural secondary schools. The results of their study showed that students from urban secondary schools had a mean score greater than their counterparts from rural secondary schools. This shows that students from urban secondary schools performed better than their counterparts from rural secondary schools.

The findings of this study are again consistent with the results of a study conducted by Adepoju (2008) in Oyo. In the study Adepoju found a significant difference in the academic performance of students from urban and rural schools. The difference in academic performance among the students may be due to the concentration of more qualified teachers posted to the urban schools as against those in rural areas. Akiri and Ugborugbo (2008) concluded that provision of education in rural areas is faced with difficulties and problems such as: qualified teachers refusing appointment to isolated villages; villagers refusing to send their children to school because they are dependent on them for help; parents hesitating to entrust their daughters to male teachers: lack of roads, books and teaching materials. Again, school environment may be classified into urban, semi-urban and rural. This classification sometimes goes a long way to influence government distribution of social amenities like electricity, water, hospital and educational institution.

It is common knowledge that many of these social amenities are concentrated in urban areas than rural areas and so rural schools face a difficulty of exposure to new trends in education as well as getting qualified teachers to accept postings to those places. A typical example is a situation where the pupils learn information and communication technology (ICT) without computers or sometimes there are computers but no electricity supply. In such a situation, the students will have to learn in the abstract, a subject that requires more practice and sit for the same examination with those who have the privilege to learn it practically. In such a situation, there will obviously be a difference in results between these two students.

Conclusion

The study concludes that the location and sex of students determined their academic performance. The results showed that female students performed better than their male counterparts. Again, students from urban schools performed better than their counterparts from rural schools. The gap in academic performance might be as a result of the non-upgrade of facilities as well as provision of learning resources to junior high schools in the rural areas to the standards of schools in the urban areas.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. That male students should be aided to catch up academically with their female counterparts since the study established that females performed better than their male counterparts. This can be done when teachers vary their teaching styles or classroom management strategies.
2. To bridge the dichotomy in urban rural students' performance, it is recommended that the Ministry of Education together with the Ghana Education Service and the District Assembly should as a matter of urgency try to upgrade the facilities as well as providing learning resources in junior high schools in the rural areas to the standards of schools in the urban areas. The Ghana Education Service should make good its incentive packages to teachers who accept postings to schools in the rural areas. It is envisaged that with these measures in place, they will make the schools in the rural areas attractive to both the students and teachers and by extension initiate and sustain interest in school work.



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