Comparative study of gender difference performance in geography: A case study of some selected schools in Zaria inspectorate division of Kaduna state, Nigeria

Yusuf Yakubu Obadaki* and Yakubu Kabirat Omowumi

1Department of Geography, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
2Department of Science Education, Ahmadu Bello University, Zaria

Accepted 04 May, 2012

INTRODUCTION

Although, male superiority over females in tasks measuring spatial ability is an accepted truism which has been dominated by many authors (Fennema, 1974; Stumpf and Klieme, 1989; Hyde et al., 1990, Voyer et al., 1995), in recent days females claim to be equal to the males in all fields of life. It will be interesting to note that this gender difference in performance on spatial tasks does not appear in all cultures. In order to find out the situation in Zaria, three years data of performance of students in West African Senior Secondary Certificate Examination (WASSCE) for four schools were carefully analysed in this study to compare gender difference in achievements in Geography. Simple descriptive statistics and correlation analysis were utilized. From the analysis of data gathered, it was found that although more boys offer Geography, girls perform better than boys in Geography in the selected schools. It is however pertinent to quickly add that there is no significant difference in their achievements as the correlation between the two is relatively high.

Key words: Gender Difference, Performance, Achievement, Geography, Zaria.
goal research with males reporting higher performance goals than females and females reporting higher mastery goals than males (Hyde and Linn, 1988). But they are not studied extensively outside of the North America and other Western Europe countries (Agbuga and Xiang, 2008).

The West African Senior Secondary Certificate Examination (WASSCE) tests student’s mastery of Geography as a discipline with concentration on Human, Physical, Regional and Practical Geography (Map Reading). The major mathematical aspects of map reading include scale conversion, calculating distance, finding bearings, gradient calculation, enlargement and reduction, calculating areas of regular shapes, intervisibility, profile drawing e.t.c. Research suggests that a strong masculine bias exists in maps and that little mention is made of women in the discipline (Gender Geography, 2010).

In Nigeria, some works have been carried out to study gender difference in achievements in some specific fields (Olusegun, 1975; Agbale, 1977; Monye, 1977; Nwagwu, 1977; Gaiya, 1981; Muraleedharan, 1982; Aminu, 1983; Ojunuba, 1984). It is worth mentioning however, that, gender achievement in geography has not received much attention in this part of the country that has a long history of poor female performance in formal education generally. It is in this light that based on the findings of the studies on other subjects, it is assumed that there exists a “gender gap” in achievement in geography with the perception that males perform better than females.

This study therefore becomes imperative and is poised to answer the following questions:

1. Are the numbers of males offering geography more than those of females?
2. Do males do better than females in geography?

**Aim and objectives**

The purpose of this study is to compare gender difference in achievement in Geography using selected secondary schools in Zaria Inspectorate Division of Kaduna State. The aim will be achieved using the following set of objectives, to:

1. Determine the male to female ratio of students offering geography in the case study.
2. Evaluate the distribution of performance by male and female students.
3. Determine the statistics of the geography achievement of the males and females.

**Hypotheses**

Deriving from the objectives in the foregoing, are the null hypotheses that:

1. There is no significant difference in the number of male and female students offering Geography in Zaria Inspectorate Division of Kaduna State
2. There is no significant difference in gender achievement in Geography in selected secondary schools in Zaria Inspectorate Division of Kaduna State.
METHODOLOGY

Research design and population

The research design utilized in this study is the survey type using five years WASSCE result in Geography from selected secondary schools within Zaria Inspectorate Division of Kaduna State. The population comprised of all the students that wrote the May/June West African Senior Secondary Certificate Examination (WASSCE) in Geography in the secondary schools within the Zaria Inspectorate Division from 2004 to 2008.

Sample and sampling technique

There are many secondary schools within Zaria Inspectorate Division. They include both private and government secondary schools. The private secondary schools are categorized into four; systematic sampling of the first on each category is employed. The selected private schools are:

1. Therbow School, No. 6 Theresa Bowyer Road, Zaria.
3. CTC Academy, Muchia S/Gari, Zaria.
4. Abdurrahman Memorial College of Islamic Studies, No. 56/57 Aminu Rd., T/Wada, Zaria.

The government secondary schools include both single and mixed schools therefore; stratified sampling is first carried out to separate the mixed schools from the single ones. Furthermore, since a five year data of results will be used, those schools with less than five years of existence are also excluded. Since four schools were selected amongst the private schools, four schools were selected from the public schools by systematic sampling of every other fifth school in the table. The selected government schools are:


On visiting the selected schools to collect the data, all the schools in the foregoing except Therbow secondary school, had no enough data required for the study. In the case of Abdurrahman Memorial College, they do not write WAEC and National Examination Council (NECO) except SSCE. As a result, the five (5) years became unrealistic thereby resorting to three years and selecting only four schools purposively (two from private and two from government schools) as follows:

1. Therbow School, No. 6 Theresa Bowyer Road, Zaria.
2. Comprehensive College, Railway Compound, Zaria.

Research instrument

The instrument used to collect data for this study was inventory. The inventory requested for results obtained in the May/June WASSCE Geography examinations from 2006 to 2008 of students from the examination office of the four selected secondary schools in Zaria Inspectorate Division of Kaduna state.

Data analyses

Simple descriptive statistics was utilized to present and analyze the distribution by gender of the students that offered Geography in the selected secondary schools. Correlation analysis was then used to determine the degree of correlation between the two sets of scores. Finally, the Student's test was used to test significance of the correlation co-efficient at the 90 and 95% significance levels.

PRESENTATION OF DATA, ANALYSIS AND DISCUSSION

Data presentation

Table 1 presents the distribution of students that offered Geography according to gender in the selected schools within the period of study (2006-2008). Comparison between the total number of boys and girls' values derived from the study showed that there is a significant difference as the percentage over-estimation was 66.5% as follows:

\[
\frac{921}{553} \times 100 = 166.5\%
\]

Similarly, pairwise comparison, using the Pearson's correlation coefficient showed that the correlation between the number of boys and girls' values though high is insignificant at the 0.05 level indicating that there is a significant difference between the pairs of data. This is shown in the summary of the analysis in Table 2.

Analysis of students' achievement in Geography

Male students' achievement in Geography

Tables 3 and 4 presents the achievement of male students that offered geography in the selected schools within the period of study (2006 to 2008). From the tables, it will be noticed that 43% of male students make distinction and credits in Geography. However, their performance is still above average as more than half (55.86%) of the students at least pass Geography either at credit or pass level. It is worth-mentioning however, that, students with very good results are very much fewer than those with lower credits and passes.

Female students' achievement in Geography

Tables 5 and 6 presents the achievement of female students that offered geography in the selected schools within the period of study (2006 to 2008). From the tables, it will be noticed that 55.88% of female students
Table 1. Distribution of students according to gender in the selected schools.

<table>
<thead>
<tr>
<th>Schools</th>
<th>Type of school</th>
<th>Number of boys</th>
<th>Number of girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therbow School</td>
<td>Private</td>
<td>127</td>
<td>123</td>
<td>250</td>
</tr>
<tr>
<td>Comprehensive College</td>
<td>Private</td>
<td>436</td>
<td>295</td>
<td>731</td>
</tr>
<tr>
<td>GCC Muchiya</td>
<td>Government</td>
<td>139</td>
<td>48</td>
<td>187</td>
</tr>
<tr>
<td>GSS Dakace</td>
<td>Government</td>
<td>219</td>
<td>87</td>
<td>306</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>921</td>
<td>553</td>
<td>1474</td>
</tr>
</tbody>
</table>

Table 2. Paired samples correlation of boys and girls.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Boys and girls</td>
<td>4</td>
<td>0.912</td>
<td>0.088</td>
</tr>
</tbody>
</table>

Table 3. Male students’ achievement in Geography.

<table>
<thead>
<tr>
<th>School</th>
<th>A1</th>
<th>B2</th>
<th>B3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>D7</th>
<th>E8</th>
<th>F9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therbow School</td>
<td>19</td>
<td>16</td>
<td>67</td>
<td>8</td>
<td>12</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Comprehensive College</td>
<td>-</td>
<td>5</td>
<td>54</td>
<td>37</td>
<td>42</td>
<td>76</td>
<td>66</td>
<td>91</td>
<td>65</td>
</tr>
<tr>
<td>GCC Muchiya</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>22</td>
<td>105</td>
</tr>
<tr>
<td>GSS Dakace</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>5</td>
<td>6</td>
<td>22</td>
<td>27</td>
<td>41</td>
<td>101</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>23</td>
<td>24</td>
<td>132</td>
<td>50</td>
<td>61</td>
<td>106</td>
<td>100</td>
<td>154</td>
<td>271</td>
</tr>
</tbody>
</table>

A1 is Distinction, B2 and B3 are Upper credits, C4, C5 and C6 are Lower credits, D7 and E8 are Passes while F9 is Fail.

Table 4. Relative male students’ achievement in Geography.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of students</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>23</td>
<td>2.50</td>
</tr>
<tr>
<td>B2</td>
<td>24</td>
<td>2.61</td>
</tr>
<tr>
<td>B3</td>
<td>132</td>
<td>14.33</td>
</tr>
<tr>
<td>C4</td>
<td>50</td>
<td>5.43</td>
</tr>
<tr>
<td>C5</td>
<td>61</td>
<td>6.62</td>
</tr>
<tr>
<td>C6</td>
<td>106</td>
<td>11.51</td>
</tr>
<tr>
<td>D7</td>
<td>100</td>
<td>10.86</td>
</tr>
<tr>
<td>E8</td>
<td>154</td>
<td>16.72</td>
</tr>
<tr>
<td>F9</td>
<td>271</td>
<td>29.42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>921</td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Examination of gender difference in achievements in Geography

Achievements in Geography. It can be observed from the figure that females do better than boys as in the distinction, credits and pass levels, they perform better than boys (that is, A1-D7), while the boys only outrun them in fail grades (E8 and F9). This is a confirmation that the girls perform better than boys in Geography.

However, pairwise comparison, using the Pearson’s correlation coefficient showed that the correlation between the achievements of boys and girls is very high indicating that there is great similarity between the pairs of data. There is therefore no significant difference in gender achievement in Geography in the selected schools. This is shown in the summary of the analysis in Table 7.

The results in Table 7 imply that performance of students from these groups of schools (private and public) tend to be similar contradicting the expectation that boys will perform better than girls significantly under normal condition. Interestingly, girls are showing an impressive performance in Geography which conforms with contemporary research in gender geography (Gender Geography, 2010).

Summary of findings

Comparison between the total number of boys and girls’
Table 5. Female students' achievement in Geography.

<table>
<thead>
<tr>
<th>Schools</th>
<th>A1</th>
<th>B2</th>
<th>B3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>D7</th>
<th>E8</th>
<th>F9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therbow School</td>
<td>24</td>
<td>18</td>
<td>53</td>
<td>10</td>
<td>11</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Comprehensive College</td>
<td>1</td>
<td>3</td>
<td>43</td>
<td>29</td>
<td>37</td>
<td>51</td>
<td>51</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>GCC Muchiya</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>12</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>GSS Dakace</td>
<td>-</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>13</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>22</td>
<td>103</td>
<td>42</td>
<td>50</td>
<td>67</td>
<td>68</td>
<td>78</td>
<td>98</td>
</tr>
</tbody>
</table>

Table 6. Relative female students' achievement in Geography.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of students</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>25</td>
<td>4.52</td>
</tr>
<tr>
<td>B2</td>
<td>22</td>
<td>3.98</td>
</tr>
<tr>
<td>B3</td>
<td>103</td>
<td>18.63</td>
</tr>
<tr>
<td>C4</td>
<td>42</td>
<td>7.59</td>
</tr>
<tr>
<td>C5</td>
<td>50</td>
<td>9.04</td>
</tr>
<tr>
<td>C6</td>
<td>67</td>
<td>12.12</td>
</tr>
<tr>
<td>D7</td>
<td>68</td>
<td>12.30</td>
</tr>
<tr>
<td>E8</td>
<td>78</td>
<td>14.10</td>
</tr>
<tr>
<td>F9</td>
<td>98</td>
<td>17.72</td>
</tr>
<tr>
<td>Total</td>
<td>553</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Figure 2. Relative students' achievement in Geography.

values derived from the study showed that there is a significant difference as the percentage over-estimation was 66.5%.
Similarly, pairwise comparison, using the Pearson's
correlation coefficient showed that the correlation between the number of boys and girls’ is insignificant at the 0.05 level indicating that there is a significant difference between the pairs of data which means more boys offer Geography. It was found that 43% of male students make distinction and credits in Geography. However, their performance is still above average as more than half (55.86%) of the students at least pass Geography either at credit or pass level but students with very good results are very much fewer than those with lower credits and passes. On the other side, 55.88% of female students make distinction and credits in Geography with performance generally above average as more than half (68.18%) of the students at least pass Geography either at credit or pass level. It was discovered that the female students with very good results are more than that of the male students.

A comparative analysis of boys and girls’ achievements in Geography revealed that females do better than boys since in the distinction, credits and pass levels, they perform better than boys (that is, A1 to D7), while the boys only outrun them in fail grades (E8 and F9). This is a confirmation that the girls perform better than boys in Geography in the selected schools.

However, pairwise comparison, using the Pearson’s correlation coefficient showed that the correlation between the achievements of boys and girls is very high indicating that there is great similarity between the pairs of data. There is therefore no significant difference in gender achievement in Geography in the selected schools.

**Table 7. Paired samples correlation of boys and girls’ achievements.**

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Boys and girls</td>
<td>9</td>
<td>0.862**</td>
<td>0.003</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.05 level.**

Practical Geography (Phillips, 2005). The focus of this study was therefore, to make a comparative study of gender difference in achievements in Geography as a subject area.

Based on the findings of the study from the analysis of data gathered, it can be said that although more boys offer Geography, girls perform better than boys in Geography in the selected schools. It is however pertinent to quickly add that there is no significant difference in their achievements as the correlation between the two is relatively high.

**RECOMMENDATIONS**

Based on the findings of this study, the following recommendations become imperative.

1. Teachers and parents should de-emphasize identifying Geography as a subject area that is mainly for boys.
2. Teachers and parents should encourage their female children and students to select Geography as an option during their SSCE.
3. Females should be motivated to take up Geography as a discipline of study in the Universities.
4. Parents and teachers should encourage females to take up Geography as a career in life since they have the tendency of doing well as Geographers.

**REFERENCES**


Agbuga B, Xiang P (2008). Gender Differences Among Turkish High School Students in Physical Education: An Achievement Goal Theory Approach Texas A&M University-College Station.


Hyde JS, Fennema E, Lamon SJ (1990). Gender Differences in

**Conclusion**

Several works have been done in examining and assessing gender differences in academic achievements in different areas of specializations however, very little is known about gender difference in achievements in Geography. This is because Geography is always placed under achievements in spatial abilities without considering it as an independent subject area for critical assessment and examination.

Also, some of the little work done in the subject area only investigate gender difference in students’ achievements in Practical Geography; an area that seems to be problematic and also has spatial characteristics (Falaye, 2006). Practical Geography is however, only a component of Geography as a subject area that can be said to be made up of Human, Physical, Regional and
Hyde JS, Linn MC (1988). Gender Differences in Verbal Ability: A Meta-
Monye FO (1977). Measurement of Attitude Differentials between Male
and Female Students towards the Study of French Language in Post-
primary Schools in Borno Area with Particular Reference to
Secondary Schools in Maiduguri. Unpublished PGDE Project,
Institute of Education, Ahmadu Bello University, Zaria.
Murileedharan NN (1982). Sex Differences in Attitude towards
Mathematics in Secondary Schools in and around Zaria. Unpublished
PGDE Project, Institute of Education, Ahmadu Bello University, Zaria.
Nwaqwu PE (1977). Sex Differences in Mathematics Achievement and
Attitude in Secondary Schools in Borno State. Unpublished PGDE
Project, Institute of Education, Ahmadu Bello University, Zaria.
Ojunuba GA (1984) An Investigation into Factors influencing Students
Performance in Geography in the WASSCE: A Case Study of Holy
Rosery College, Idah. Unpublished PGDE Project, Institute of
Education, Ahmadu Bello University, Zaria.
Olusegun MM (1975). Comparative Study of the Ability of Boys and
Girls in Integrated Science: A Case Study of Obbo Teachers’
College, Kwara State. Unpublished PGDE Project, Institute of
Education, Ahmadu Bello University, Zaria.
Stumpf H, Klieme E (1999). Sex-related Differences in Spatial Ability:
Voyer D, Voyer S, Bryden MP (1995). Magnitude of Sex Differences in
Spatial Abilities: A Meta-analysis and Consideration of Critical
opportunities for girls and boys: perspectives through time from a
Warrington M, Younger M (2006). Working on the inside: discourses,
Warrington M, Younger M (2007). Closing the Gender Gap? Issues of
Equity in English Secondary Schools, Discourse: Studies in the