

Gender Differences and Students' Academic Performance in Selected Subjects in Public's Secondary Schools in Ekpoma, Edo State

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Abstract

This study investigated the influence of gender on students' academic performance in Home Economics and Basic science in public secondary schools in Ekpoma, Edo State. Survey method of the descriptive research design was adopted in the study. The population of the study covered all the 3478 Junior Secondary School (JSS) students in the 16 public secondary schools in Ekpoma metropolis of Edo State. Eight (8) schools were randomly selected by lottery method in the study area. Data on students' performance in Home Economics and Basic science were collected from the academic record of selected schools in the study area. Mean (\bar{X}) and standard deviations (S.D) were used to analyze the research questions while the t- for independent sample mean was used to test the hypothesis. Findings showed that the average performances of students in Home Economics and Basic Science are 61.6% and 50.3% respectively. Results further showed gender based differences in students' academic performance in Home Economics (in favor of female students) and in Basic Science (in favour of their male counterparts). It was recommended that Teachers teaching these subjects should take cognizance of sex differences in students' performance in Home Economics and Basic Science and therefore, Endeavour to encourage male students with the necessary morals they need to compete favorably with the females in Home Economics.

Keywords: Basic Science, Home Economics, Selected Subjects, Academic Performance, Gender, Differences,

Introduction

Basic education is the early childhood education that is given to children aged 0-15 years. It is segmented into ages 0-4 years, situated in daycare or crèches, fully in the hands of the private sector and social development services, whilst ages 5-6 are within the formal education sector (Federal Republic of Nigeria, 2013). The goals of basic education as succinctly spelt out by the Federal Republic of Nigeria (FRN) (2013) are to:

- a. provide the child with diverse basic knowledge and skills for entrepreneurship, wealth generation and educational advancement;
- b. develop patriotic young people equipped to contribute to social development and in the performance of their civic responsibilities; and
- c. inculcate values and raise morally upright individuals capable of independent thinking, and who appreciate the dignity of labour

In order to achieve the aforementioned goals, the federal government recognizes the roles of a selected group of subjects that help to equip learners at the junior secondary education level with the manipulative and innovative skills needed for the world of work. These subjects are Home Economics and Basic science. The FRN (2004) under the National Policy on Education outlined the following as the objectives of junior secondary as to;

equip students to live effectively in the age of science and technology, develop and project Nigeria culture; raise a generation of people who can think for themselves, have respect for dignity of labour and foster unity of Nigerian. Consequently, subjects like Home Economics and Basic Science are taught at the junior secondary school level in Nigeria to actualize these objectives.

Home Economics and Basic Science are two notable subjects in the curriculum for junior secondary education. The former (Home Economics) deals with the study of the relationship of people and various aspects of their environment such as clothing, housing, the management of the home and finances while the latter (Basic Science) is a subject which is devised and presented in such a way that students gain the concept of the fundamental unity of science, the commonality of approach to problem of scientific nature and helps students to gain an understanding of the roles and functions of science in everyday life and the world in which they live (Ugwuanyi, 2022). It is the bedrock to advance studies in science, technology and engineering (Bukunola & Idowu, 2012).

Home Economics is the study of the relationship of people and aspects of their environment such as clothing, housing and finance. Okpala (2005) described it as a skill-oriented, decision-making

subject that equips learners with skills and knowledge which will help them to be self-employed and at the same time, contribute effectively to the socio-economic development of the family and society. On the other hand, Basic Science programme started in July, 2006 with the appropriation of the Universal Basic Education (UBE) fund to the Universal Basic Education Commission (UBEC) and subsequent disbursement to States. The education programme is regarded as a reinforcement of the 6-3-3-4 policy on education rather than a new policy in itself. The main objectives of the basic science programme are to prepare students to acquire adequate laboratory and field skills and also to inculcate in learners the meaningful and relevant knowledge in basic science, the ability to apply scientific knowledge to everyday life in matters of personal and community health, and agriculture; reasonable and functional scientific attitudes (Ugwuanyi, 2022).

It is clear from the above, that the basic desire of government on these school subjects is to facilitate the process of economic, innovative and creative thinking among citizens in the country. Hence, these subjects are very unique among various other subjects taught in Nigeria secondary schools. Unlike other school subjects, students are required to work with equipment in the metal/wood workshop, computer and typewriter in the typing pool, cutlery and utensils in the 'Home Economics' laboratory. Despite the laudable objective of secondary education in Nigeria, scholars like Udoukpong, Emah and Umoren (2012) and Adeleke, Binuomote and Adeyinka (2013) still reported that academic performance among school subjects is on the decline among learners of both sexes in secondary schools.

Sex and gender are two terms often used interchangeably or synonymously in the academia. The latter (gender) is a sociological construct that refers to a wide range of biological, emotional mental, behavioural, and physical characteristics that can be attributed to "maleness" or "femaleness" of an individual while the former (sex) is the biological classification of all individuals into two mutually exclusive outcomes of male or females based on their "XX", 'XY'- chromosome make up respectively (Sun, 2022). This study operationally concerns itself with the biological categorization of sex. Hence, the term sex of student in this study is used in relation to gender of student.

Adigun, Onihunwa, Irunokhai, Sad and Adesina (2015), described gender as the range of physical, biological, mental and behavioural characteristics pertaining to and differentiating between the feminine and masculine (female and male) population. According to them, the importance of examining performance in relation to gender is based primarily on the socio-cultural differences between girls and boys that often make people attribute some vocations and professions such as

engineering, construction works, arts and crafts, etc to men while catering, typing, nursing, secretarial duties are classified as a female domain.

This subconscious gender concept sometimes influences parents' perception of what their child(ren) can do, the errands they are sent to run and domestic chores they are assigned to do. Consequently, it is not uncommon to have parents send their sons to weed the garden, fix a damaged appliance, go harvesting deep rooted tubers on the farm, or even go fetch some firewood with a truck. These errands are quite different from the domestic chores they assign to the girl-child such as washing of dishes, sweeping the bedroom, cleaning the kitchen, fetching water, or bathing their younger siblings. This seeming shows that the male children are often engaged with more tedious outdoor activities compared to domestic chores that are often assigned to girls at home. This is perhaps responsible for the self-concept, stereotypes and fixed role perceptions of individuals in career, business, ministry, and even at school levels.

Studies on students' academic performance in school subjects with respect to gender are equivocal with mixed results. William, Walducer and Vijaya (1992) found no evidence to support the hypothesis that significant and consistent gender difference exist in college student performance in Economics. Anderson, Benjamin & Fuss (1994) observed that Introductory Economics course was the overall performance level of those that are taking a course in Calculus in University. The result also showed that male students outperformed the female in Introductory Economics. In a study of Student characteristics and academic performance in Business Studies in Junior Secondary Schools in Akwa Ibom State, Ekanem (2008) used a total of 600 junior secondary students (300 males and 300 females). The finding of the study indicated that the performance mean score for the males was 25.07 as against the female performance mean score of 25.87. The calculated t-test value showed no significant difference between the mean scores of male and female students.

Jebson (2003) investigated on gender difference in relationship between students' academic achievement. Six years were considered to determine difference to gender in relation to Junior Secondary Certificate Examination (JSCE) Integrated Science and Secondary School Certificate Examination (SSCE) in Biology, Chemistry and Physics. The results revealed that there is no significant difference in the relationship between grades in JSCE integrated Science and SSCE in Biology, Chemistry and Physics. Ballard & Johnson (2004) further observed that there is gender imbalance which is 42 percent women and 56 percent men, and women received a disproportionate

percentage of the higher grades. 82 percent of the high distinctions and 74 percent of the distinctions went to male students in Introductory Economics

In Udoukpong, Emah and Umoren's (2012) study, they examined the differences in the academic performance in Business Studies of junior secondary school students in Akwa Ibom State of Nigeria. A sample of 290 (138 male and 152 female) Junior Secondary Three (9th grade) students was surveyed. The students' variables' being examined vis-à-vis academic performance in Business Studies were gender and self-concept. Results showed that students' academic performance in Business Studies differed significantly on the basis of gender and self-concept.

Adigun, Onihunwa, Irunokhai, Sada and Adesina (2015) studied the relationship between student's gender and academic performance in computer science in New Bussa, Borgu local government of Niger State. Questionnaire which consist of 30 multiple-choice items drawn from Senior School Certificate Examination past questions as set by the West Africa Examination Council in 2014 multiple choice past question was used as the research instrument consist. The questionnaire was administered to 275 students from both private and public schools in the study area. The students' responses were marked and scored, afterward analysed using independent t-test. The results of the study showed that even though the male students had slightly better performance compared to the female students, it was not significant.

Amuda, Ali, and Durkwa (2016) determined gender difference in the academic performance in Senior Secondary Certificate Examination (SSCE) Economics subject among senior secondary school students from 2006 to 2010 sessions in Maiduguri Metropolis, Borno State, Nigeria. Two objectives were stated, two research questions were answered and two hypotheses were tested. Ex-post facto research design was used. A total of 8699 students' results were used for academic performance, 5679 male students and 3020 female students, results in West African Senior Secondary Certificate Examination (WASSCE) while in SSCE, National Examination Council (NECO) the total results used was 9074. Males results was 5491 and females was 3583 in economics for 2006 to 2010 sessions. Descriptive statistics of percentages was used to answer the research questions while t-test statistics was used to test the hypotheses. The results of the analysis revealed that male students in senior secondary schools in Maiduguri metropolis have better grades than their female counterpart in economics for 2006-2010 sessions. The results further showed that there was no significant gender difference in the academic performance of students in SSCE, WAEC and NECO in Economics while SSCE, WAEC and NECO for 2006/2007 session in

Economics for 2008 to 2010 sessions showed consistent significant gender difference in the academic performance of students in favour of male students.

From the foregoing, it is evident that studies in Nigeria on gender differences on students' academic performance are quite equivocal as reported on various subjects in diverse states of the federation. However, a knowledge gap exists on the influence of gender on prevocational studies in Ekpoma, Edo State.

Method of Study

Descriptive design based on the survey method was adopted in this study. The population of the study covered all the 3478 Junior Secondary School (JSS) students in the 16 public secondary schools in Ekpoma metropolis of Edo State. Eight (8) schools were randomly selected by lottery method in the study area. This was done by picking eight in sixteen pieces of folded paper with each paper containing the name of one public school in the metropolis.

The instrument used for the collection of data was a Prevocational Studies Inventory Score (PRESIS) sheet. The instrument was used to collect data on sex and academic performance of junior secondary school students in Home Economics and Basic Science on their promotion examination. The scores of students collected with PRESIS were adjudged to be standardized scores on a continuous or interval scale ranging from 1-100%. Hence, the instrument and data collected were not subjected to any form of validation or reliability investigation.

In order to collect data on students' scores in Home Economics and Basic Science, due permission was taken from necessary authorities in secondary schools in the study area with the aid of a draft letter written to the principal. This was done to clearly explain the purpose of the research exercise and solicit the cooperation of the school authorities in providing the data required for the analysis. Data collected were descriptively analysed with mean (\bar{X}) and standard deviations (S.D). The t-test for two independent samples was further used to test their mean score for differences with respect to gender. The hypothesis was tested at 0.05 alpha level using Statistical Package for Social Science (IBM SPSS®).

Results

Results from the analyses of research questions and test of hypothesis are presented below:

Research Question 1: What is the academic performance of junior secondary students in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis?

Table 1: Mean score of students in Prevocational subjects with respect to their sexes

<u>Gender</u>		<u>Home Economics</u>	<u>Basic Science</u>
<u>Male</u>	<u>N</u>	48	75
	<u>\bar{X}</u>	<u>56.3 **</u>	<u>57.2**</u>
	<u>S.D</u>	<u>13.9</u>	<u>13.6</u>
<u>Female</u>	<u>N</u>	63	63
	<u>\bar{X}</u>	<u>65.7***</u>	<u>41.9 *</u>
	<u>S.D</u>	<u>13.2</u>	<u>6.2</u>
<u>Overall</u>	<u>N</u>	111	138
	<u>\bar{X}</u>	<u>61.6 ***</u>	<u>50.3 **</u>
	<u>S.D</u>	<u>14.2</u>	<u>13.3</u>

***60-69% (Very Good)

**50-59% (Good/Credit/Average)

*40-49% (Pass)

Data in Table 1 indicates that male students in Home Economics scored less ($\bar{X} = 56.3\%$) than female students ($\bar{X} = 65.7\%$) while in Basic Science, male students scored higher ($\bar{X} = 57.2\%$) than female students ($\bar{X} = 41.9\%$). However, the overall average performances of students in Home Economics and Basic Science are 61.6% and 50.3% respectively. This indicates that students' performance in Home Economics in Ekpoma metropolis is above average while their performance in Basic Science is just at the average level.

Hypothesis 1: There is no significant difference between male and female junior school students on their academic performance in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis

Table 2: Summary of t-test analysis on Students' Performance in Home Economics and Basic Science by Sex

<u>Variables</u>	<u>Gender</u>	<u>N</u>	<u>X</u>	<u>SD</u>	<u>t-cal.</u>	<u>p-value</u>	<u>Remark</u>
Home Economics	Male	48	56.27	13.87	3.64*	0.000	Null hypothesis rejected ($p < 0.05$)
	Female	63	65.67	13.21			
Basic Science	Male	75	57.24	6.18	8.22*	0.000	Null hypothesis rejected ($p < 0.01$)
	Female	63	41.97	13.61			

* *t-value is significant at 0.05alpha level*

Result in Table 2 shows that the calculated t-value of 3.64 for Home Economics and 8.22 for Basic Science are statistically significant ($p < 0.05$). Thus, the null hypothesis which states that there is no significant difference between male and female junior school students on their academic performance in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis is rejected while the alternate is accepted. This implies that students' academic performance differs by gender (sex) of students in Home Economics and Basic Science in secondary schools in Ekpoma, Edo State.

Discussion

The results from the analysis shows that students' performance in Home Economics in Ekpoma metropolis is above average while their performance in Basic Science is just at the average level. The result further showed gender based differences in students' performance in Home Economics and Basic Science in favour of female and male students respectively. Consequently, result from the test of hypothesis indicated that students' academic performance on Home Economics and Basic Science subjects in secondary schools in Ekpoma metropolis differ significantly by gender (sex) of students.

This is in consonance with the findings of Udoukpong, Emah and Umoren (2012) in Akwa Ibom, who found that students' academic performance in Business Studies differed significantly on the basis of their gender and self-concept. Similarly, Amuda, Ali, and Durkwa's (2016) study on gender differences on students' academic performance in Senior Secondary Certificate Examination

(SSCE) Economics subject in Maiduguri Metropolis, showed consistent significant gender difference in the academic performance of students in favour of male students.

On the other hand, Adigun, Onihunwa, Irunokhai, Sada and Adesina (2015) who studied the relationship between student's gender and academic performance in computer science in New Bussa, Borgu Local government of Niger State and found that even though the male students had slightly better performance compared to the female students, it was not significant. Similarly, William, Walducer & Vijaya (1992) who found no evidence to support the hypothesis that significant and consistent gender difference exist in college student performance in Economics examination.

Conclusion

The role of technology based subjects cannot be undermined in equipping students with scientific skills and preparing them for self-reliance. The performance of Junior secondary school students in Home Economics in Ekpoma, Edo State is above average while their performance in Basic Science is just at the average level. Based on results, it is concluded that their performance differs with respect to the gender of students

Recommendations

The following are recommendations for the study:

- 1) Home Economics and Basic science subject teachers should take cognisance of sex differences in students' performance in Home Economics and Basic Science and therefore, endeavour to encourage male students with the necessary morals they need to compete favourably with the females in Home Economics.
- 2) The government should introduce a sensitization programme that would help give parents and students the right orientation and perspective about female and male-dominance in Home Economics and Basic Science respectively. This is expected to help them make informed decisions and accept the subject based on their passion and not just sex dominance debates.

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