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Comparative study of Students' Achievement in Computer and Mathematics in Junior Secondary School Certificate Examination in Abakaliki Local Government Area of Ebonyi State, Nigeria.

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ABSTRACT

The role computer studies play in the secondary schools students achievements in mathematics cannot be over emphasized, therefore, the researcher carryout a research on the topic the comparative study of the relationship between student's achievement in computer and mathematics in JSSCE. In the course of this study, the research outlined its purpose as, to compare student achievement in computer and mathematics specifically in JSSCE, to compare achievement in mathematics and computer based on gender in JSSCE, to compare achievement in mathematics and computer based on single sex. Related literatures were reviewed. Co-relational survey was used for the study. The 2008, 2009 and 2010 result documented JSSCE results were .collected and used to make the comparative analysis and presented in a frequency distribution table using Mean as the test tool. The findings showed that there is a relationship between student mean achievement score in computer and mathematics, that gender as a factor has some effect on student's academic achievement on computer and mathematics, and that area of school location has no significance impact on the students mean achieve score in computer and mathematics. Therefore the following recommendations were made amongst which are: That the Government should endeavour to give scholarship on area of disciplines such as computer and mathematics having in mind that they are the basis for scientific and technological development, that teachers should lay more emphasis on the teaching of mathematics and computer in most secondary schools, and that Ministry of education and other educational authorities should ensure that teachers use appropriate teaching method to teach mathematics and computer in order not to deviate from its aim and objectives.

Keywords: Comparative, Students, Achievement, Computer and Mathematics

INTRODUCTION

Nigeria is a nation with in-exhaustible potentials and untapped resources which are properly harnessed will assist the country to meet an optimum level of development in science and technology. Mathematics and computer can be used to harness one's country's resources. According to [1] relation is the way in which two or more things, people, animals are connected. Relationship is a condition or fact of connection or association. According to [2], mathematics is considered as a language, an art, a science, a tool and a game. Mathematics can also be considered as the language used to express size and order. According to [3] without adequate attention of students to mathematics and computer, no nation can meaningfully develop or progress in this modern age. The great mathematician Blaize Pascal developed a device called Abacus which marked the beginning of computer, because any machine, device or system used to make mathematical computations can be referred to as computer. Mathematics is also the science of logical reasoning which involved the search for truth. The Lexicon universal encyclopedia (1999) extent it explanation to say that considering mathematics as a tool that contains tools for problem solving, organizing, simplifying, interpreting data, and performing calculations that are necessary in subjects such as science.

Computer can be defined as the device that accepts data and manipulate it for some result based on the program or sequence of instructions on how the data is to be processed. Computer also includes the means for storing data for some necessary duration. According to [4] computer can be defined as an electronic gadget which has been carefully organized or assembled to accept data and instruction from the user, process the data and instruction to give out desired information. Many eminent scholars from both mathematics has been a subject of mental stress, this study need a calculating and such as computer to ease the mental stress or depression associated with the study, no wonder pocket calculator is inevitable in the study of mathematics especially in the higher institutions of learning. [5] has this to say, "emphasizing mathematical unit structure, logical inter-relatedness and an orderly presentation of the concept, aid understanding, based on this view, there is no doubt therefore that the computer with its logic emphatic and orderliness capabilities will in no small measure aid in understanding of mathematics, following the trace in the historical development of computer, it was identified that Blaize Pascal developed in 1964 the first computer machine known as calculating machine which could add and subtract, this machine shows how far it could assist the solving of mathematical and statistical problems. JSSCE is an examination board that conducts examination annually. Candidate who are due for the examination are cleared and the principal of the school does the registration. During registration, forms are presented to each candidate to fill, which will contain the passport photographs of candidate for identification of each candidate which in the examination hall to eradicate impersonation. Society has seen education as the surest way through which individual can acquire and develop skill that will enable them become skillful, experienced, resourceful and functional in the society. Based on the explanation above, it was normally believed that for one to enter into Senior Secondary School, he or she must have completed Junior Secondary School with good grade.

Statement of the Problem

JSSCE is a very important way of evaluating student. JSSCE is a foundation for entering into Senior Secondary School. Therefore, the success of any student to enter into the senior Secondary School depends largely on his or her achievement in this body. Hence the study is designed to investigate the relationship between student achievement in mathematics and computer in JSSCE.

METHODOLOGY

This chapter presents the method employed in the research. The following sub-topic was included in the chapter. Design of the study, Area of the study, Population of the study Sample and sampling techniques, Instrument for data collection, Validity and reliability of instrument, Method of data collection and, Method of data analysis.

Design of the Study

The design of the study was co-relational survey design. It is co-relational because it involves collecting information in order to ascertain what relationship exists between two or more measurable variables.

Area of the Study

The research was conducted 'in selected Junior Secondary School in Abakaliki Local Government Area of Ebonyi State.

Population of the Study

The population of the study was all JSS3 students in Abakaliki Local Government Area of Ebonyi State. There were about two thousand eight hundred (2, 800) students offering mathematics and computer as recorded by Ebonyi North Educational zone.

Sample and Sampling Technique

Seventy (70) JSS3 students were sampled randomly, selected from all Secondary Schools in Abakaliki Local Government Area of Ebonyi State. The technique employed was simple random sampling. Two schools were used for the study. One single sex and another co-educational school

Instrument for Data Collection

The study has only one major instrument. It was documented JSS3 result from the state ministry of Education Ebonyi State. The researcher used 2008, 2009 and 2010 result of the JSSCE to make the comparative analysis.

Validation of the Instrument

It is a standard instrument, it was documented from JSSCE result from the ministry of education, and therefore, it is valid.

Reliability of the Study

It is a standard instrument documented from the JSSCE result from the ministry of education, therefore, it is reliable.

Method of Data Collection

During the study, the researcher took a comparative study of the JSSCE result from 2008-2010. The researcher was assisted by the principals of the schools who helped to make a strike compilation of the results. The results obtained were used to analyze and answer the research questions.

Method of Data Analysis

The score of the students from the documented JSSCE results were collected and presented in a frequency distribution table. Mean from each group were used to answer the research questions.

RESULTS

This chapter presents the results of the research with regards to the research questions:

Research Question 1: What are the mean score achievement of students in computer and mathematics in JSSCE for the period of 2008-2010?

Table 1: The mean score achievement of students in computer and mathematics in JSSCE for the period of 2008-2010

	Computer			**Mathematics**			
Year	C	P	D	Year	C	P	**D**
2008	50	28	8	2008	47	34	**5**
2009	53	47	5	2009	38	40	**7**
2010	42	22	6	2010	38	26	**6**
Total	**145**	**97**	**19**	**Total**	**143**	**100**	**18**

The mean and standard deviation score of JSSCE student result from 2008-2010

Table 2

	Computer		Mathematics		
MEAN			**MEAN**		
C	P	D	C	P	**D**
48	**32**	**6**	**48**	**33**	**6**

From the table 1 above, the mean score of students that got credit (C) in mathematics was 48 and their mean score in computer was 48. This shows that there is a close relationship between students achievement in computer and mathematics between 2008-2010. From the above table 1.1 also, the mean score of students that got P in computer was 32 and the mean score of students that got pass (P) in mathematics was 33. This shows that there is a relationship (though weak) between students achievement in computer and mathematics between 2008-2010. Also, from the above table, the mean score of students that got (D) Distinction in computer and in mathematics was 1 and 1 respectively. This shows that there is a relationship between students achievement in computer and mathematics between 2008-2010. From the table also, it can be deduced that the students mean score in computer and mathematics in (C) credit and P (pass) was relatively higher when compared to the achievement score in D (Distinction).

Research question 2: What are the mean achievement score of students on computer and mathematics based on gender for the period of 2008-2010?

Table 3: The mean score of students on computer and mathematics based on gender.

Year	**Male**	**Female**
	Mean	**Mean**
2008	19.00	**26**
2009	13.00J	**30**
2010	**11.00**	**12**

From the table above, the mean achievement score of male students in computer and mathematics in the year 2008 were 19 and that of female for the same subject 26. This shows that female students performed better than the male students in computer and mathematics in 2008. In year 2009, the mean achievement score of male students in computer and mathematics was 23, while that of female was 30. This implies that the female students performed better in computer whereas male students performed better than female students in mathematics in year 2009. In the year 2010, the mean achievement score of male students on computer was 11 and mathematics while that of female was 12. From the result above, it can be deduced that there was relationship between male and female achievement score in computer and mathematics while in mathematics the male students performed better than the female students in mathematics.

Research question 3: What are the mean achievement scores of students in JSSCE Exam based on single sex?

Table 4

	Computer			Mathematics			
Year	C	P	D	Year	C	P	**D**
2008	39	28	3	2008	26	40	**4**
2009	42	19	8	2009	27	33	**9**
2010	52	10	7	2010	33	32	**3**
Total	**133**	**37**	**18**	**Total**	**86**	**105**	**16**

The mean achievement score of students in computer and mathematics in JSSCE Exam based on the single sex.

Table 5

Year	**Computer**	**Mathematics**
	Mean	**Mean**
2008	44	**29**
2009	19	**35**
2010	6	**5**
Total	**69**	**69**

From the above table, the mean score of students in computer that got credit (C) was 44 and their mean score in mathematics was 29. This shows that there is no relationship between student achievement score in computer and mathematics in year 2008. In the year 2009, the mean score of students in computer and mathematics was 19 and 35. This shows that there is no close relationship between student achievement score in computer and mathematics. In the year 2010, the mean score of students that score (D) Distinction in computer was 6 and those that scored (D) Distinction in mathematics was 5. This indicates that there is a relationship between student achievement in computer and mathematics. From the table above, it can be deduced that the student mean achievement score in mathematics and computer in the three years under study, were totally summed to 69 in both subjects, showing that in as much as the means of each years varies, they still came to the same point.

DISCUSSION OF THE FINDINGS

The result obtained by the researcher from the three consecutive years from 2008-2010 as written in table 1 shows that there is a relationship between students mean achievement score in computer and mathematics. [6] maintained that "for any nation to grow in this modern age, there must be a great relationship in mathematics and computer. The second findings shows that gender as a factor has some effect on student's academic achievement on computer and mathematics. In table 2 above, female has a higher mean achieve score than male in the two years of the study, while on the third year of study, their mean achievement score were closely related. The third finding shows that area of single sex has no significance impact on the students mean achievement score in computer and mathematics.

Educational Implications of the Findings

The result of this study has some implications on our educational background concerning government. For any nation to meet up to the maximum level of development in science and technology, the available mineral resources must be properly harnessed, mathematics and computer is a key to that success.

(1) The fact that students mean achievement scores in the three years of study on computer and mathematics are not the same indicate that there is no dependency in their performance.
(2) Emphasis on gender such as paying attention to particular sex with regard to learning of science may be unnecessary. Encouragement to male and female to learn science is necessary however girls need to be put together with boys to ensure that they have similar learning experience.

Recommendations

The following recommendations were made based on the following and implication of the study.
(1) Government should Endeavour to give scholarship on area of disciplines such as computer and mathematics having in mind that they are the basis for scientific and technological development.
(2) Teachers should lay more emphasis on the teaching of mathematics and computer in most secondary schools
(3) Ministry of education and other educational authorities should ensure that teachers use appropriate teaching method to teach mathematics and computer in order not to deviate from its aim and objectives.

Limitations of the Study

The first limitation of the study is the researcher's inability to carry out this study in all the schools in Abakaliki local government Area of Ebonyi State. This made some of this study not to be generalized.The second limitation is that, the study was concluded on area of Mathematics and computer alone which is not the only area of science and technology.

Suggestion for further study

The study has thrown out challenges for further study. The major finding of this research shows that student's achievement scores in computer and mathematics are dependent on gender while area of school location has no significant impact on the student's mean achievement score in computer and mathematics. These area are worthy of examining.
1. In the study, the researcher asserted that girls performed better than boys on computer and mathematics. It may be profitable if several and similar studies were carried out to end the controversy of gender achievement problems.
2. The researcher suggest that the similar study be carried out in a wider range.
3. The researcher also suggest that similar study be carried out on other science subjects such as Basic science and Introductory technology.

Summary of the Study

This survey study aims at evaluating the comparative analysis of student's achievement in mathematics and computer. A total number of seventy (70) students selected for the study were used for the analysis. The data were collected, organized and analyzed using mean and standard deviations. The result of the findings were used to answer the three research questions. In the analysis, it was gathered that there was a very close relationship between the student's mean achievement score on computer and mathematics. The researcher examined educational implications. The researcher made some recommendations and also suggested some ways out for further studies.

CONCLUSION

The following conclusion has been drawn based on the research result. The development of any nation depends on scientific and technical knowhow which mathematics and computer is the root basis. Also in table 3, it was gathered that gender has no effect on student's mean achievement scores. The need that computer and mathematics can be used to harness the country's resources calls for the attention of everybody to rise to the challenges of saving the nations resources. Government should not hesitate to offer scholarship to people who wish to study mathematics and computer in higher class of learning with a view to saving it's country from total economic collapse.If all these

strategies are put in place, our society educationally will go a long way to improve on educationally and economically.

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