

Mathematics and Computer Studies in Education at Junior Secondary School Level

Ugama Julius O.

Science Education Department Ebonyi State University Abakaliki, Ebonyi State.

ABSTRACT

The study aimed at identifying the role of mathematics in computer education in Junior Secondary School. Seven research questions were formulated for the study. Casual comparative research design was used to determine the relationship between the two variables using Junior Secondary School Certificate Examination Results in Ebonyi North Education zone from the randomly selected schools. Spearman range order correlation coefficient mainly was used and mean to analyze the collected data. The findings indicated very high positively relationship between the two variables, that decline in mathematics performance brings decline in computer education performance, and students' excellent performance in mathematics results in their excellent performance in computer education respectively. For research questions 2 thorough 7, the findings also indicated the mean of above average. With respect to the findings, some recommendations were made.

Keywords: Mathematics, Computer Studies, Education, Junior Secondary School and Level.

INTRODUCTION

All the while, people have been talking about computer application in various areas of human endeavour especially in mathematics, in the other way round; it was as a result of mathematical problems that computer was invented mainly. [1] in the earlier days, counting involving complex numbers was by the use of fingers and toes till a certain stage where using of fingers and toes couldn't help again, they started making use of tally system where fire sticks are tied together and called one, until when the use of tally system couldn't achieve counting any longer, man was seriously looking for a way of encountering the number counting problems. [2] in his book, Boolean Algebra, used mathematical logic (i.e) when a statement consists of two or more simple statements, in achieving logical operation in computer education. Such as "AND", "OR", and "NOT" for instance, "AND" the result is True if both expressions are true."OR" the result is True if either of the expression is True. "NOT" this changes True value of an expression to die opposite (False) and vice versa. The role of mathematics in computer education could be viewed as something, which has contributed a lot to teaching and learning. In Holy Ghost Secondary and primary school, Abakaliki, trinity Secondary School Abakaiiki, Ebonyi State University secondary and primary school, Abakaliki and Federal Girls College, Ezzamgbo, where computer studies is one of their major or core subjects, in fact, from their result in both mathematics and computer studies, it creates to the knowledge of the researcher t¹ true are working hand in hand. In Holy Ghost Secondary school precisely, the students senior secondary certificate examination (SSCE) result from (1993 - 2000) shows that mathematics has much effect on computer studies, because there was no student who passed mathematics who didn't pass computer studies, that is, among the student who offered computer studies, the reason being that computer studies is an elective subject in Holy Ghost Secondary school Abakaliki.

In Federal Gkis College, Ezzamgbo, where Senior Secondary School Certificate Examination (SSCE) has not taken place tor once, because it was established recently in (2000) precisely, from their internal examination results right from (2001 - 2003) when they started doing

computer studies, the researcher observed the same, that is to say, mathematics and computer studies are two subjects which performance in one seems to influence the other so seriously.

It was as a result of working hand in hand of mathematics and computer studies that led to the design of mathematical calculating machine. [3] designed calculating machine used by his father in calculating /computing people's tax because his father was a tax man in France. [4], a professor in mathematics in Cambridge University applied his mathematical polynomials knowledge in achievement of computer education by designing a machine known as difference Engine, used in the evaluation of polynomials. To elucidate the role of mathematics in computer education, the great computer designers right from the pre-modern world till date are almost mathematicians by using their mathematical knowledge and as well for using computer in solving their mathematical problems. In fact, the role of mathematics in computer education abounds in all perspectives.

Statement of the problem

To what extent does mathematics enhance the understanding of computer in junior secondary school. Computer education is a new innovation in our education system. Since junior secondary school is skill acquisition stage, the introduction of computer education will increase skill acquisition by the students. Very few schools in Ebonyi State are offering computer education in their school syllabus. Computer is science oriented and is related to mathematics. Put differently knowledge of mathematics should be an advantage in the learning of computer thus, this study wishes to examine the role of mathematics in the understanding of computer by junior secondary school students.

RESEARCH METHODOLOGY

Design of the Study

The research was a casual comparative research design. *The* researcher used Junior secondary school certificate examination results on mathematics and determined the performance in computer education. [5] casual comparative design is a design used to compare two variables to determine which one is dependent variable to each other.

Area of Study

Ebonyi north education zone of Ebonyi State in public and private, urban and rural schools, girls, boys, and co-educational institutions within the education zone was used. The researcher also carried the research using the two subjects mathematics and computer studies as the variables.

Population

Ebonyi north education zone has total of fifty one (51) secondary schools, which comprises of: forty five (45) public secondary schools, out of the forty five, four- Boys, six Girls, and thirty five- co-educational institutions. From the forty-five public secondary schools, five schools are in urban area while forty schools are in rural area. As well, there are six private secondary schools, which with the forty-five public schools make up the fifty-one (51) secondary schools as mentioned above within the education zone.

Table 1: Total Number of Schools in Ebonyi North Education Zone.

TYPE	LOCATION	TYPE OF SCHOOL			TOTAL
		BOYS	GIRLS	CO-EDUAL	
PUBLIC	URBAN	1	1	INST,	5
	RURAL	3	5	3	40
				32	
	URBAN	-	1	3	4
PRIVATE	RURAL	-	1	1	3
TOTAL SCHOOLS IN THE EDUCATION ZONE					51

Sample and Sampling Technique

The sample consisted of three hundred (300) students past examination results in junior secondary school certificate examination. Fifty (50) past examination result will be collected from six (6) secondary school which will be strategically selected and sample for the study. The stratification was as follows: Four secondary schools in urban area and two secondary schools in rural area. Out of the six secondary schools, four secondary schools will be coeducational institutions, two schools were girls secondary school and boys none, this was so because, computer studies is new in the secondary school curriculum in Nigeria and therefore, it is only six secondary schools are doing computer studies within the zone. So, the six secondary schools were used and the result obtained was generalized. As well, out of the six secondary schools, five were private and one public secondary school. The students past examination results on computer studies and mathematics were collected and used to determine the role of mathematics in computer education in the education zone. See the table below.

Table 2: Total number of School sampled

TYPE	LOCATION	TYPE OF SCHOOL			TOTAL
		BOYS	GIRLS	CO-EDUAL	
PUBLIC	URBAN	-	-	INST.	-
	RURAL	-	1	-	1
PRIVATE	URBAN	-	1	3	4
	RURAL	-	-	1	1
TOTAL NO OF SCHOOLS STRATIFICALLY SELECTED					6

Data Collection

The researcher used achievement scores. This instrument was used to enable the researcher calculate the mean scores of die students on mathematics and computer studies based on die location of the schools, gender of the students using the mathematics mean formula.

Method of Data Analysis

$$\text{Mean } x = \frac{\sum x}{\sum f} \quad [6]$$

And determine the correlation between the two subjects Involved (that is) mathematics and computer studies using the correlation formula.

$$\text{Correlation } r_{s1} = \frac{6\sum(D)^2}{N(n^2 - 1)} \quad [7],$$

When the performance in mathematics influences the performance in computer studies, then it means that mathematics correlates computer studies either negatively or positively. Correlation is usually expressed as a coefficient called correlation coefficient which implies both the magnitude and direction of relationship with their variables. [8] states that correlation could be high or low, positive or negative. A high correlation co-efficient indicates a great relationship while a low correlation co-efficient indicates a low degree relationship. A positive coefficient indicates a direction relation (that is) as one variable increases the other also Increases. A negative co-efficient indicates an increase (that is) one variable increase as the other decreases. Correlation co-efficient ranges from -1.00 to 1.00, When the correlation co-efficient is -1.00, there is negative correlative. When the correlation coefficient is 1.00, there is positive correlative. When the correlation coefficient is 1.00, there is positive correlation. When the correlation co-efficient is 0.00, there is no correlation [9]. There will be correlation between mathematics and computer studies if their correlation coefficient is not zero (0.00) that is $r_s \neq 0$. If the correlation co-efficient falls under (-1.00) or close to it, there is negative correlation between mathematics and computer studies, but if the correlation co-efficient falls under (1.00) or close to it, there is positive correlation between mathematics and computer studies.

RESULTS

Research question 1: What is the correlation coefficient between mathematics and computer studies? Data collected with regard to the research question (1) is analyzed descriptively and the findings reported. The tables below show this with respect to various schools. The letters ms represent the variable mathematics cs represent die variable computer studies, m represent male, fr represent female, fl represent frequency, and r represent rank.

Similarly,

D = rms- res,

Rms = $\frac{\text{range of number(s) in ms}}{\text{Fl}}$ [10]

Where Fl = frequency

As well, res = $\frac{\text{range of number(s) in cs}}{\text{Fl}}$

Table 3: Table of data collected from Holy Ghost secondary school, one of the co-educational institutions in urban area within Ebonyi North educational zone (private).

SN	MS	FMS	CS	FCS	Rms	Res	D	D ²	SEX
I	90	2	90	1	1.5	1	.5	.25	M
2	90		88	1	1.5	2	- 5	.25	M
3	81	1	81	1	3	3	0	0	M
4	80	1	80	2	4	4.5	-.5	.25	M
5	79	2	80		5.5	4.5	1	1	F
6	79		76	1	5.5	6	-.5	.25	F
7	77	1	75	2	7	7.5	-.5	.25	M
8	75	2	75		8.5	7.5	1	1	F
9	75		74	2	8.5	9.5	-1	1	F
10	74	2	74		10.5	9.5	1	1	M
11	74		72	1	10.5	11	-5	.25	M
12	72	2	70	3	12.5	13	-5	.25	F
13	72		70		12.5	13	-5	.25	F
14	71	1	70		14	13	1	1	F
15	70	4	68	4	16.5	15.5	1	1	M
16	70		68		16.5	15.5	1	31	M
17	70		68		16.5	15.5	1	1	F
18	70		68		16.5	15.5	1	1	F
19	65	1	63	1	19	18	1	1	M
20	64	1	62	4	20	20.5	-.5	.25	F
21	63	4	62		22.5	20.5	2	4	M
22	63		62		22.5	20.5	2	4	M
23	63		62		22.5	20.5	2	4	M
24	63		60	2	22.5	23.5	-1	1	F
25	61	1	60		22.5	23.5	1.5	2.25	F
26	60	1	58	4	26.5	26.5	0	0	M
27	58	1	58		28	26.5	1.5	2.25	M
28	57	1	58		29	26.5	2.5	6.25	M
29	56	4	58		31.5	26.5	5	25	F
30	56		56	1	31.5	29	2.5	6.25	M
31	56		55	3	31.5	31	.5	.25	
32	56		55		31.5	31	.5	.25	F

33		55	3	55		35	31	4	16	M
34		55		51	3	35	34	1	1	F
35		55		51		35	34	1	1	M
36		52	1	51		37	34	3	9	M
37		50	2	50	3	38.5	37	1.5	2.24	F
38		50		50		38.5	37	1.5	2.25	F
39		46	3	50		41	37	4	16	F
40		46		48	1	41	38	3	9	M
41		46		42	3	41	40	1	1	F
42		45	1	42		43	40	3	9	F
43		40	1	42		45	40	5	25	F
44		39	1	41	1	47	41	6	36	F
45		38	1	40	4	48	43,5	4,5	20.25	F
46		35	2	40		49.5	43.5	6	36	F
47		35		40		49.5	43.5	6	36	F
48		34		40		49.5	49.5	0	0	F
49		34	2	35	2	49.5	49.5	0	0	M
50		34		35		49.5	49.5	0	0	F
Total		3037	50	2979	50				287.5	

$$\underline{\underline{r = 0.99}}$$

Hence; the two variables, mathematics and computer studies are highly positively related. So, there is high relationship between them. From the table above, there is great effect of mathematics in the achievement of computer studies.

Tables 4: Table of data collected from Trinity Secondary School Abakaliki, one of the co-educational institutions in urban area of the study (private).

SN		MS	FMS	CS	FCS	Rms	Res	D	D ²	SEX
1		85	1	90	1	1	1	0	0	M
2		84	2	82	2	2.5	2.5	0	0	F
3		84		82		2.5	2.5	0	0	M
4		80	3	78	2	5	4.5	.5	.25	M
5		80		78		5	4.5	.5	.25	F
6		80		75		5	6.5	-1.5	2.25	F
7		75	4	75	1	8.5	6.5	2	4	M
8		75		73	2	8.5	8.5	0	0	F
9		75		73		8.5	8.5	0	0	M

10		75		72	1	8.5	10	-1.5	2.25	M
11		72	2	71	2	11.5	11.5	0	0	F
12		72		71		11.5	11.5	0	0	F
13		70	3	70	4	14	14.5	.5	.25	M
14		70		70		14	14.5	.5	.25	M
15		70		70		14	14.5	.5	.25	F
16		62	2	70		14	14.5	2	4	M
17		62		62	2	16.5	16.5	0	0	F
18		60	5	62		20	16.5	3.5	12.25	F
19		60		60	5	20	20	0	0	M
20		60		60		20	20	0	0	M
21		60		60		20	20	0	0	F
22		60		60		20	20	0	0	F
23		58	2	60		23.5	20.5	3.5	12.25	M
24		58		55	5	23.5	25	-1.5	2.25	F
25		56	5	55		27	25	2	4	F
26		56		55		27	25	2	4	M
27		56		55		27	25	2	4	F
28		56		55		27	25	2	4	F
29		56		51	2	27	28.5	-1.5	2.25	M
30		55	1	51		30	28.5	1.5	2.25	F
31		52		50	4	31.5	31.5	0	0	F
32		52		50		31.5	31	0	0	F
33		50	3	50		34	31.5	2.5	6.25	F
34		50		50		34	1.5	2.5	6.25	F
35		50		48	6	34	36.5	-2.5	6.25	M
36		48	2	48		35.5	36.5	-1	1	M
37		48		48		35.5	36.5	-1	1	M
38		47	2	48		37.5	36.5	1	1	M
39		47		48		37.5	36.5	1	1	M
40		45	1	48		39	36.5	2.5	6.25	F
41		40	2	45	1	40.5	40	.5	.25	F
42		40		40	5	45	43	2.5	6.25	F
43		38	3	40		43	43	0	0	F

441		38		40		43	43	0	0	F
45		38		40		43	43	0	0	F
46		32	2	40		45.5	46	2.5	6.25	F
47		32		39	1	45.5	46	-.5	.25	F
48		30	3	35	1	47	47	0	0	F
49		30		30	2	47	49.5	-2.5	6.25	F
50		30		30		47	49.5	-2.5	6.25	F
Total		2894	50	2888	50				115.5	

$$r = 0.99$$

Therefore, the two variables are highly positively related. So, there is correlation between mathematics and computer studies in this school.

Table 5: table of data collected from Bishop Otubale girls' secondary school Abakaliki (private) located in urban area.

SN		MS	FMS	CS	PCS	Rms	Res	D	D ²	SEX
1		78	1	80	1	1	1	0	0	F
2		75	2	75	2	2.5	2.5	0	0	F
3		75		75		2.5	2.5	0	0	F
4		72	1	74	1	4	4	0	0	F
5		70	1	70	3	5	6	-1	1	F
6		68	2	70		7	6	1	34	
7		68		70		7	6	1	1	F
8		66	3	65	5	7	10	-3	9	F
9		66		65		9.5	10	-5	.25	F
10		66		65		9.5	10	-5	.25	F
11		65	2	65		11.5	10	1.5	2.25	F
12		65		65		11.5	10	1.5	2.25	F
13		64	3	64	2	14	13.5	.5	.25	F
14		64		64		14	13.5	.5	.25	F
15		64		62	3	14	16	-2	4	F
16		63	2	62		16.5	16	.5	.25	F
17		63		62		16.5	16	.5	.25	F
18		61	2	60	7	18.5	21	-2.5	6.25	F
19		61		60		18.5	21	-2.5	6.25	F
20		60	2	60		20.5	21	-.5	.25	F
21		60		60		20.5	21	-.5	.25	F
22		57	2	60		22.5	21	1.5	2.25	F

23		57		60		22.5	21	1.5	2.25	F
24		52	1	60		24	21	3	9	F
25		50	1	50	4	25	26.5	-1.5	2.25	F
26		48	2	50		26.5	26.5	0	0	F
27		48		50		26.5	26.5	0	0	F
28		46	1	50		28	26.5	1.5	2.25	F
29		45	2	46	3	29.5	30	.5	.25	F
30		45		46		29.5	30	.5	.25	F
31		44	2	46		31.5	30	1.5	2.25	F
32		44		42	3	31.5	33	-2.5	-	F
									6.25	
33		42	2	42		33.5	33	.5	.25	F
34		42		42		33.5	33	.5	.25	F
35		40	1	41	5	35	37	-1	4	F
36		39	2	41		36.5	37	-.5	.25	F
37		39		41		36.5	37	-.5	.25	F
38		38	2	41		38.5	37	1.5	35	
39		38		41		38,5	37	1.5	2,25	F
40		36	3	40	5	4i	42	-1	1	F
41		36		40		41	40	1	1	F
42		36		40		41	40	1	1	F
43		33	1	40		43	42	1	1	F
44		30	2	40		44. 5	42	1.5	2.25	F
45		30		39	2	44.5	45.5	-1	1	F
46		28	2	39		46.5	45.5	-1	1	F
47		28		35	1	46.5	47	-5	.25	F
48		25	3	32	2	48	48.5	-.5	.25	F
49		25		32		48	48.5	-5	.25	F
50		25		30	1	48	50	-2	4	F
Total		2559	50	2679	50				84.5	

r = 0.99

The two variable, mathematics and computer studies are highly positively related. Therefore, there is correlation between them.

Table 6: table of data collected from Community Secondary School Abogodo one of the private school in rural area part of the zone, coeducational institution.

SN	MS	FMS	CS	PCS	Rms	Res	D	D ²	SEX
1	85	2	78	2	1.5	1.5	0	0	M
2	85		78		1.5	1.5	0	0	M
3	82	2	75	2	3.5	3.5	0	0	F
4	82		75		3.5	3.5	0	0	M
5	80	2	74	2	5,5	5.5	0	0	F
6	80		74		5.5	5.5	0	0	M
7	84	2	70	2	7.5	7.5	0	0	F
8	74		70		7.5	7.5	0	0	F
9	70	2	65	5	9.5	11	1-.5	2.25	M
10	70		65		9.5	11	1-.5	2.25	M
11	68	1	65		11	11	0	0	F
12	65	1	65		12	11	1	1	M
13	64	2	65		13.5	11	2.5	6.25	M
14	64		64	1	13.5	14	-.5	.25	F
15	61	3	63	1	16	15	1	1	F
16	61		62	2	16	16.5	-.5	.25	F
17	61		62		16	16.5	- 5	.25	M
18	60	1	61	3	18	19	-1	1	M
19	58	2	61		19.5	19	-.5	.25	F
20	58		61		19.5	19	-.5	.25	F
21	52	1	60	1	21	21	0	0	F
22	51	2	52	1	22.5	22	-5	.25	M
23	51		51	2	22.5	23.5	-1	1	M
24	50	1	51		24	23.5	.25	.25	M
25	47	2	50	2	25.5	25.5	0	0	M
26	47		50		25.5	25.5	0	0	M
27	46	4	45	7	28.5	30	-1.5	2.25	F
28	46		45		28,5	30	-1.5	2.25	F
29	46		45		28.5	30	-1.5	2.25	M
30	46		45		28.5	30	-1.5	2.25	M
31	43	2	45		31.5	30	1.5	2.25	F

32		43		45		31.5	30	1.5	2.25	M
33		42	1	45		33	30	3	9	F
34		41	2	41	1	34.5	34	.5	.25	M
65		41		40	5	34.5	37	-2.5	6.25	M
36		40	1	40		36	37	-1	1	F
37		38	1	40		37	37	0	L°	F
38		37	2	40		38.5	37	1.5	2.25	F
39		37		40		38,5	37	1.5	2.25	M
40		36	3	39	1	41	40	1	1	F
41		36		38	2	41	41.5	-.5	.25	F
42		35		38		41	41.5	-5	.25	F
43		35	2	36	2	43.5	43.5	0	0	F
,44		35		36		43.5	43.5	0	0	F
45		35		36	1	45.5	45	.5	.25	F
46		30		30	2	45.5	46.5	1	1	F
47		29	2	30		47.5	46.5	1	1	M
48		29		29	1	47.5	48	-5	.25	M
49		28	2	28	2	49.5	49.5	0	0	M
50		28		28		49.5	49.5	0	0	M
Total		3298	50	2589	50				55	

$r = 0.98$

The two variables are highly positively related.

Therefore, there is correlation between mathematics and computer studies in this school.

Table 7: Table of data collected from Federal girls College Ezzamgbo, a public Secondary School located in rural part of the education zone.

SN	MS	FMS	CS	FCS	Rms	Res	D	D ²	SEX
1	95	3	90	5	2	3	-1	1	F
2	95		90		1	3	-1	1	F
3	95		90		2	3	-1	1	F
4	90	2	90		4.5	3	1.5	2.25	F
5	90		90		4.5	3	1,5	2.25	F
6	85	2	85	1	6.5	6	.5	.25	F
7	82		80	1	9.5	10	-.5	.25	F
8	82	4	80	5	9.5	10	-.5	.25	F
9	82		80		9.5	10	-.5	.25	F

10		82		80		9.5	10	-.5	.25	F
11		82		80		9.5	10	-.5	.25	F
12		80	4	80		13.5	10	3.5	12.25	F
13		80		78	3	T^T	14	-.5	.25	F
14		80		78		13.5	14	-.5	.25	F
15		80		78		13.5	14	-.5	.25	F
16		75	2	72	2	16,5	16.5	0	0	F
17		75		72		16.5	16.5	0	0	F
18		70	3	62	3	19	19	0	0	F
19		70		62		19	19	0	0	F
20		70		62		19	19	0	0	F
21		65	2	60	4	21.5	21.5	0	0	F
22		65		60		21.5	21.5	0	0	F
23		64	2	60		23.5	23.5	2	4	F
24		64		60		23.5	23.5	2	4	F
25		60	4	55	1	26.5	24	38	5	F
26		60		53	3	26.5	26	.5	.25	F
27		60		53		26.5	26	.5	.25	F
28		60		53		26.5	26	.5	.25	F
29		55	1	50	8	29	31.5	-2.5	6.25	F
30		53	2	50		29	31.5	-2.5	2.25	F
31		53		50		30.5	31.5	-1.5	2.25	F
32		50	1	50		52	31.5	.5	.25	F
33		45	5	50		35	31.5	3.5	12.25	F
34		45		50		35	31.5	3.5	12.25	F
35		45		50		35	31.5	3.5	12.25	F
36		45		45	1	35	31.5	3.5	12.25	F
37		45		45	1	35	36	-1	1	F
38		40	1	40	5	38	39	-1	1	F
39		38	2	40		39.5	39	.5	.25	F
40		38		40		39.5	39	.5	.25	F
41		35	2	40		41.5	39	2.5	6.25	F
42		35		40		41.5	39	2.5	6.25	F
43		33	3	38	4	44	43.5	.5	.25	F
44		33		38		44	43.5	.5	.25	F

45		33		38		44	43,5	.5	.25	F
46		30	5	38		48	43.5	4.5	20.25	F
47		30		35	2	48	46.5	1.5	2.25	F
48		30		35		48	46.5	1.5	2.25	F
49		30		30	2	48	44.5	-1.5	2.25	F
50		30		30		48	44.5	-1.5	2.25	F
Total		3012	50	4581	50				142	

$r = 0.99$

Therefore, the two variables are highly positively related. So, there is correlation between mathematics and computer studies in this school.

Table 8: table of data collected from Evangel Comprehensive Secondary School Abakaiiki, private school located in urban area of the educational zone (co-educational institution).

SN		MS	FMS	CS	FCS	Rms	Res	D	D ²	SEX
1		82	1	72	2	1	1	-.5	.25	M
2		75	2	72		2.5	1.5	-1	1	M
3		75		71	1	2.5	3	-.5	.25	M
4		72	1	70	3	4	5	-1	1	F
5		70	3	70		6	5	1	1	F
6		70		70		6	5	1	1	M
7		70		69	2	6	7.5	-1.5	2.25	M
8		65	2	69		8.5	7.5	1	1	F
9		65		68	2	8.5	9.5	-1	1	F
10		64	2	68		10.5	9.5	1	1	F
11		64		65	2	10.5	11.5	-1	1	M
12		63	2	65		12.5	11.5	1	1	M
13		63		63	2	12.5	13.5	-1	1	F
14		62	2	63		34.5	13.5	1	1	M
15		62		62	1	14.5	15	-1	.25	M
16		60	1	61	2	16	16.5	.5	.25	F
17		56	1	61		17	16.5	-0.5	.25	F
18		55	2	55	1	18.5	18	.5	.25	M
19		55		53	1	18.5	19	-.5	.25	M
20		52	1	51	2	20	20.5	-.5	.25	F
21		51	2	51		21.5	20.5	1	1	F

22		51		50	1	21.5	22	-.5	.25	M
23		50	2	48	3	23.5	24	-.5	.25	M
24		50		48		23.5	24	-5	.25	F
25		48	2	48		25.5	24	1.5	2.25	M
26		48		47	2	25.5	26.5	-1	I	F
27	'	46	2	47		27.5	26.5	1	1	M
28		46		46	3	27.5	29	-1.5	2.25	F
29	^	45	2	46		29.5	29	.5	.25	F
30		45		46		29.5	30	.5	.25	F
31		44	2	46		31.5	31.5	0	0	F
32		44		45	1	31.5	31	.5	.25	F
33		43	2	44	2	33.5	32,5	1	1	F
34		43		44		33.5	32.5	1	1	F
35		42	2	42	1	35.5	34	1.5	2.25	F
36		42		41	1	35.5	35	.5	.25	F
37		40	1	40	2	37	36.5	.5	.25	F
38		38	1	40		38	36.5	1.5	2.25	M
39		35	2	38	2	39.5	38.5	1	1	F
40		35		38		39.5	38.5	1	1	M
41		34	2	35	2	41.5	40.5	1	1	F
42		34		35		41.5	40.5	1	1	M
43		30	4	34	2	44.5	42.5	2	4	F
44		30		34		44.5	42.5	2	4	F
45		30		32	2	44,5	44,5	0	0	F
46		30		32		44.5	44,5	0	0	F
47		28	1	30	2	47	46.5	.5	.25	F
48		27	2	30		48.5	46.5	2	4	F
49		27		28	2	48.5	49.5	-1	1	M
50		28	1	28		50	49.5	.5	.25	M
Total		2481	50	2488	50				43.75	

$$r = 0.99$$

Research question 2: What is the mean achievement score of student in computer studies?
The Mean = 71.7

Table 9: Total number of Boys and Girls in each of the School.

Tables	Numbers of Boys	Number of Girls	Type	Location
4.1	22	28	Co-edu.	Urban
4.2	19	31	Co-edu	Urban
4.3	-	50	Girls	Urban
4.4	24	26	Co-edu	Urban
4.5		50	Girls	Urban
4.6	21	29	Co-edu	Urban
Total number of Boys in urban schools		62		
Total number of Girls in urban school		138		
Total number of Boys in rural schools		24		
Total number of Girls in rural schools		76		

Research question 3: What is the mean achievement score of students in rural schools in mathematics and computer studies? The Mean $\bar{X} = 72$ and 63.

Research question 4: What is the mean score of students In urban schools in mathematics and computer studies? The Mean $\bar{X} = 55$ and 55.2

Research question 5: What is the man score of male students in rural secondary schools in both mathematics and computer studies? The Mean $\bar{X} = 53.7$ and 52.7

Research question 6: What is the mean score of female students in rural secondary schools in both mathematics and computer studies? The Mean $\bar{X} = 56.9$ and 77.7

Research question 7: What is the mean achievement score of students in mathematics? The Mean $\bar{X} = 57.6$

DISCUSSION

The result of the study carried out showed that there is great role of mathematics in computer education in Junior Secondary School Certificate Examination, the result of the data collected at Holy Ghost Secondary School, mathematics performance correlated me performance in computer education with 0.99 correlation co-efficient, which means mat there are highly positively related. The result of data collected at Trinity Secondary School, their performance correlates each other with 0.99 coefficients. Therefore, there are positively related. The result of data, collect at Bishop Otutbale Girls Secondary School, the performance of mathematics and computer education. Correlate each with 0.99 co-efficient, which implies that there are highly positively related. The result of the data collected at community secondary school Abogodo, mathematics performance correlation. Computer performance with 0.98 coefficients. So performance in mathematics highly relates the performance in computer education in this school. The result of the data collected at Federal Girls College Ezzamgbo showed that, their performances correlate each other with 0.99 coefficients. Therefore, the study absolutely showed that there is great role of mathematics in computer education in Junior Secondary School

RECOMMENDATIONS

From the findings and discussions, the researcher made the following recommendations,

1. The state government should be static in signing into law, the introduction of computer studies in all the secondary schools in Ebonyi North education zone of the state
2. Parents should be counseling their wards on the importance of doing computer studies in secondary school level.
3. Computer studies teachers should be teaching their students the major concept of computer in secondary schools.
4. There should be students' orientation days or guidance and counseling days on the importance of computer studies and its importance applications in the society.
5. Principals should be up and doing in discharging school administration such as releasing money in purchase of computers for practical.
6. The government should fund schools adequately in order to provide not only computers but also basic amenities rather in the schools,
7. The state government should make effort to post mathematics and computer studies teachers to the secondary schools in the Ebonyi North education zone of Ebonyi state.

Implications of the Study:

These discussions and findings suggest a number of education implications.

1. Students' interest in schools constitutes psychological constraints on parents and guardians.
2. Lack of qualified teachers hamper students academic work in the schools.
3. Insufficient provisions of necessary equipments to schools do not help students to tackle their challenging activities with interest.
4. Lack of cooperation between school authorities and teachers do not make for easy cooperation and smooth running of schools. There are obvious limitations in the research carried out in this study. 'The following are the limitations:

The study covers only selected schools in the Ebonyi north education zone in Ebonyi state. The researchers assume that the findings could be generalized to all the secondary schools in the Ebonyi north education zone. One of the short comings in the research study is that the data collected was examination past result in which me condition on how the examination were conducted and taken is not know, especially in some of the private schools were examination malpractice is not a serious crime during both external and internal examinations.

Suggestions for further Study:

The researcher wants attention to be focused on the following areas:

1. Investigation into the career choice of students should be carried out to know the proper type of guidance to be giving to the students by the parents and guardians to attain optimum expectation.
2. Highlights on the problems and prospects of teachers and students in the schools.
3. There should be proper look into the activities of the state education commission.
4. There should be proper look into the merits and demerits of computer in me society.

CONCLUSION

From the foregoing, the findings in the various tables as analyzed in chapter four indicated that there is high positively correlation between mathematics and computer studies (that is) there is great rote of mathematics in computer education in Ebonyi north education zone of Ebonyi state.

REFERENCES

1. Adegun M. R. (1998). FURTHER MATHEMATICS PROJECT. Ibadan, Revised edition 2 NPS Educational publishers LTD Trust house, S. W. Ring Rd, P. O. Box 62.
2. Alexandar, O. (1988). Statistical computation Enugu 3rd edition Nwamife publishers.
3. Arua, A. I. (1997). Fundamentals of statistics for Higher education: Nsukka, Fijac Academic press, Enugu, Nigeria.
4. Bene, E. (2000). Introductory Computer Appreciation and operation for schools and colleges Awka Cross country communications press, 130 Zik Avenue.
5. Dadson, J. N. (2000). Internet and anything, Internet workshop Vol. 1 pp 1-12.

6. Denis, O. (1996). Towards full Internet connectivity in Nigeria, Nigeria Internet group Vol. 1 pp 1. Col. 2-3
7. George, B. (1860). Boolean Algebra: London: Steven and sons press Ltd.
8. Inyiam, H. C. (2000). Information technology: Enugu, Paul and Cosmas press, Onyiube street, Ogui new Layout.
9. Inyama, H. C. (2001). Internet Connectivity and Local content Development: Enugu, our saviour press Ltd. 84 Agbani Rd.
10. Mbam, B. C. E. (1997). Elements of basic programming: Enugu, Our saviour press Ltd. 84 Agbani Rd.
11. Mbam, B. C. E. (2000). Computer literacy and operations: Abakaliki, Green Light computer, 28 New market Rd, Ebonyi State, Nigeria.
12. Obasi (1999). Research methodology: Enugu, Academic publishing company.
13. Ogwa, C. E. (2002). Strategies for improving Electronics Instruction. Ebonyi State University Journal of Education Vol. 1, No. 1, pp 43-48.