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Research Article

COMPUTER UTILIZATION AND MATHEMATICAL ACHIEVEMENT AMONG COLLEGE STUDENTS OF SAMAR STATE UNIVERSITY

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ABSTRACT

This study attempted to investigate to find out whether there exists a relationship between the level of computer utilization of the student- respondents and their level of achievement in mathematics. The student-respondents were the 349 college students chosen using stratified random sampling using degree program pursued as the basis for the stratification from the SSU during the school year 2013-2014. The study utilized a descriptive-correlational research design, used a constructed survey questionnaire as the principal data gathering instrument. Another instruments was the pre- validated 60 items mathematics achievement test taken from books which is used to measure the students achievement in logic, geometry, algorithm, mathematical analysis, probability and statistics, and discrete mathematics. The validation was conducted in order to determine whether the test items adapted from the books were suited to the level of the mathematical ability of the respondent to the students in EVSU Tacloban City and after the administration of the first and second administration of the questionnaire and the tests the correlation coefficient was computed and was posted at 0.886, which indicated that the test was both reliable and valid. Descriptive as well as inferential statistical tools were used to compute, analyse and interpret the data of the study. These statistical tools used were frequency count, percentage, mean, range, weighted mean, Pearson Product moment Coefficient of Correlation (Pearson r) and Fisher's t-test. Based on the data analysis results revealed that 1) the respondents' possess characteristics, which are present in college students enrolled in degree programs in colleges in Samar State University (SSU) Catbalogan City, Samar in terms of age, sex, average family income, etc. 2) the respondents are moderately knowledgeable as to basic computer concepts, moderately skilled in computer utilization, utilized computer on average of three times a week and used computers both for math related learning and other used. 3) respondents have "good" mathematics achievement based on the 60 items test. 4) computer utilization of the respondents is not significantly related to their mathematics achievement. 5) The computer utilization of the respondents and the varieties reveal significant relationships for some of the varieties such as for knowledge of basic computer concepts, degree program pursued and mathematics subjects taken are significantly related; possession of the respondents of basic computer skills in related to computer attitudes as measured by computer anxiety, computer confidence, computer liking and computer usefulness; frequency of utilization is related to average family income, educational attainment of the father, degree program pursued, average grade in math, and number of computer subjects taken. The type of computer utilization is related to average family income and degree program pursued. 6) The respondents math achievement is related to average family monthly income, degree program pursued, mother educational attainment, and number of math subjects. And for these results; it is recommended that teacher/instructor teaching computers should see to it that the students should at least know the basic knowledge of computer concepts and have basic computer skills, give exercises/lessons utilizing the computer to free their students to be able to utilized computer thus they will acquire knowledge and possess skills for utilizing computers, assess the knowledge of their students in basic computer concepts and also assess them as to possession of basic computer skills so that their students will have no anxiety, develop self- confidence toward computer utilization and should guide them in their type of computer utilization and frequency of utilization, see and talk with the parents of their students as to working together for enhance performance in computer utilization of the students, and consider the students computer knowledge and skills before giving them problems in which they will use the computers because if the students does not know, this will lead to students' letting others solve for their math problems.

INTRODUCTION

Nowadays, computers are fast becoming a standard resource in communication, transportation, business, medicine and education with an increasing utilization and reliance on computers, residential networks and access to the internet by people. Consequently, the invasion of computers has created higher expectations in people's lives, from how they communicate with other people to how they are educated in school.

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Inevitably, the ability to use a computer has become as much an expectation of adult society as the ability to read and write. Thus, every sector of society supports an increasing demandfor people with knowledge and aptitude for modern technology (Judy and D' Amico, 1998 24). It is important, then, for people of today to gain the necessary knowledge, which will allow them to use a computer with some proficiency. This expectation is extended to the educational institution-that is, administrators, teachers and students are expected to gain a certain degree of computer proficiency.

This necessities focusing attention on the school's capacity to provide updated and responsive education to students amid an increasing demand to integrate computer technology, which needs immediate attention. Computer technology is a must especially in updating instructional materials, teaching strategies and even in developing more convenient and speedier day-to-day operations of the educational institution-from enrolment to assessment of fees, to payment of fees and to library automation.

This aspiration finds support from the United States National Council of Teachers of Mathematics (US-NCTM), which stated that technology is essential in teaching and learning and its influences mathematics that is taught and enhances students' learning (Leongson and Limjap, 2003: 1)

In responding the challenge, the Philippines' Commission on Higher Education (CHED) established the Long Term Higher Education Development Plan (LTHEDP) from 2001 to 2010 based on recommendations from the recent studies brought about by economic and technological changes in global scale. The LTHEDP served for the educators to re-engineer the educational system toward excellence and quality, access and equity, relevance and responsiveness, efficiency and effectiveness (Long Term Higher Education Development Plan 2001-2010, Ogena, Foreword).

Information and Communication Technology (ICT) has reshaped the educational landscape especially on how educational institution should operate including how subjects like mathematics should be taught with technology offered by computers, CD-ROM, video tapes, satellites and various audio visual equipment which complement, and supplement traditional print education materials and methods.

This aspiration to integrate computer technology in education implies that the benefits of computer literacy should be captured more effectively in the field of education at all levels since there is an alarming observation that Filipino students are lagging behind their Asian counterparts. In facts, there is a strong perception that the students excel in knowledge acquisition but fare considerably low in lessons requiring higher order thinking skills (Leongson and Limjap, 2003. 1).

This sorry state in Philippine education is evident in the performance of students in national and international surveys in mathematics, as indicated in the 2000 National Secondary Achievement Test (NSAT), which revealed that students gave correct answers to less than fifty percent of the questions in mathematics. Similarly, in the May 2004 High School Readiness Test, grade six graduates of public elementary schools in the registered low scores in the mathematics test (deped-rsd@pacific.net.ph). Alarmed at such a disappointing situation, educators encouraged researches to address the problem on low academic performance of students. These researches have focused attention, however, on structural factors such as the capacity of the school to provide adequate textbooks, and the adequacy of physical facilities such as classrooms and equipment and laboratories (Leongson and Limjap, 2003: 1).

What they failed to emphasize is the importance of re-engineering the educational system by integrating computer technology in education in education through the development of computer-aided instructional materials and other related computer applications. The apprehension for such integration may come from the fact that it would necessitate a certain degree of computer proficiency on the parts of the administrators, teachers and students through frequent utilization of computer.

Meanwhile, it will not require a study to make an observation that the utilization of computer by the students is limited to internet usage in terms of chating, facebook, e-mailing, twitter, instagram, snapchat, video games and exploring the internet for non-educational purposes. In order to capture the productive output of computer utilization, education stakeholders should ensure that it should be applied to worthwhile educational purposes such as its application to the study of mathematics, specifically in the areas of logic, algorithm, mathematical analysis, probability and statistics, geometry and discrete mathematics.

Students who are taking up mathematics subjects face the challenge of possessing not only knowledge of the subject matter but also the application of said knowledge of the subject matter but also the application of said knowledge to other domains or field of study, including learning computers in subjects such as Statistics which is requires the use of Microsoft Excel, Statistical Package for Social Science (SPSS) and other application programs like R program. It is this for reason that a question as to whether there is a significant relationship between computer utilization and mathematics achievement become of interest to the researcher.

The researcher, being an instructor in Mathematics, wanted to determine the possibility of a relationship between computer utilization and the students' mathematical achievement. Inasmuch as there is as yet no prior study on the extent of influence computer utilization has on the students' mathematics achievement in Samar State University (SSU), Catbalogan City, Samar, the researcher has no factual evidence on the possible link between the two varieties. However, the researcher was able to gather data on the mean of computer subjects taken by some students and the mean of the mathematics subjects taken by the same students.

As far as the Bachelor of Science in Computer Engineering (BSCE) students are concerned, the mean of the grades in mathematics subjects of the third year students was posted at 3.0 or 75 whereas the mean of the grades in computer subjects taken was posted at 2.3. In like manner, the Bachelor of Science in Information Technology (BSITech), third year students had a mean for their mathematics subjects taken

posted at 2.4 while the mean for computer subjects posted at 2.3.

The data of the mean of the grades in mathematics subjects taken and computer subjects show a fluctuation-that is, either the mean in mathematics subjects is higher than that of the computer subject, and conversely. Since there is as yet no prior study which would show whether there is a significant relationship between computer utilization and mathematics achievement of college students of Samar State University, the researcher conceived of this investigation to provide baseline information on the possible influence computer utilization has on students' Mathematics achievement.

Statement of the Problem

The study determined the relationship between computer utilization of college students in Samar State University(SSU), Catbalogan City, Samar, and their achievement in Mathematics for the school year 2013-2014.

Specifically, this sought answers to the following questions:

What is the profile of the college students enrolled during the school year 2013-2014 in Samar State University (SSU), Catbalogan City, Samar in terms of the following:

1. age and sex;
2. average family income per month;
3. Parents educational attainment;
4. Degree program pursued;
5. Mathematics subjects taken;
6. Computer subjects taken;
7. Relevant computer training and seminars attended and
8. attitude towards computer?

What is the level of computer utilization of the student-respondents' based on the following:

1. knowledge of basic computer concepts;
2. possession of computer skills;
3. frequency of utilization, and
4. type of utilization?

What is the level of mathematical achievement of the students-respondents along the following areas:

1. Logic;
2. Geometry;
3. Algorithm;
4. Mathematical analysis;
5. Probability and statistics and discrete mathematics?

Is there a significant relationship between the students-respondents' computer utilization and their mathematics achievements?

Is there a significant relationship between the students-respondents' computer utilization and each of the following variates:

1. age and sex;
2. average family income per month;
3. parents' educational attainment;
4. degree program pursued;
5. Mathematics subjects taken;
6. computer subjects taken;
7. relevant computer training and seminars attended, and
8. attitude towards computer?

Is there a significant relationship between the level of mathematics achievement of the student-respondents' and each of the following variates:

1. Age and sex;
2. Average family income per month;
3. Parents' educational attainment;
4. Degree program pursued;
5. Mathematics subjects taken;
6. Computer subjects taken;
7. Relevant computer training and seminars attended, and
8. Attitude towards computer?

What implications for improvement in mathematics curriculum may be derived from the finding of this study?

Hypotheses

The following hypotheses were tested in this study:

1. There is no significant relationship between the student-respondents' computer utilization and their mathematics achievement.
2. There is no significant relationship between the student-respondents' computer utilization and each of the following variates:

1. age and sex;
2. average family income per month;
3. parents' educational attainment;
4. degree program pursued;
5. Mathematics subjects taken;
6. computer subjects taken;
7. relevant computer training and seminars attended, and
8. attitude towards computer.

There is no significant relationship between the level of mathematics achievement of the student-respondents and each of the following variates:

1. Age and sex;
2. Average family income per month;
3. Parents' educational attainment;
4. Degree program pursued;
5. Mathematics subjects taken;
6. Computer subjects taken;
7. Relevant computer training and seminars attended, and
8. Attitude towards computer.

METHODOLOGY

The Respondents of the Study

This investigation about the relationship between computer utilization and achievement in mathematics involved third, fourth and fifth year students of the College of Education, College of Arts and Sciences, College of Industrial Technology, College of Engineering and College of Nursing of Samar State University (SSU) main Campus, and the college of fisheries and Marine Sciences of Samar State University (SSU) Mercedes Campus, enrolled during the school year 2013-2014. As respondents. The study did not include first and second year college students in the sense that for some of the courses such as Bachelor of Secondary Education and bachelor of Elementary Education, the students are not yet taking up higher

mathematics subjects such as logic, algorithm, discrete mathematics and computer subjects.

To determine the sample size out of the total student population, Sloven'sformula (Santos, *et al* 1998. 11). The student-respondents of the study were the 349 college students chosen using stratified random sampling using degree program pursued as the basis for the stratification from the Samar State University (SSU) during the school year 2013-2014.

Research Design

The study utilized a descriptive-correlational research study design to determine the relationship between the students' level of computer utilization and their level of mathematics achievement.

The descriptive method was used to explain the personal characteristics of the respondents of the study in terms of their age and sex, average family income per month, parents educational attainment, degree program pursued, mathematics subject taken, computer subject taken, relevant computer trainings and seminars attended, and attitude towards computer, student-respondents' level of computer utilization in terms of their knowledge on basic computer concepts, possession of computer skills, frequency of utilization, and type of utilization, and their level of mathematical achievement along logic, geometry, algorithm, mathematical analysis, probability and statistics, and discrete mathematics.

Correlational analyses were made to determine the relationships between (a) the student-respondents' computer utilization and their mathematics achievement, (b) the student-respondents' computer utilization and their personal variates such as their age and sex, average family income per month, parents educational attainment, degree program pursued, mathematics subject taken, computer subject taken, relevant computer trainings and seminars attended, and attitude towards computer, and (c) the level of mathematics achievement of the student-respondents' and their personal variates.

The student-respondents' level of computer utilization was determined in terms of four indicators, namely, (a) knowledge on basic computer concepts, (b) possession of computer skills, (c) frequency of utilization, and (d) type of utilization.

The level of mathematical achievement was determined through the students' scores in the Mathematics Achievement Test inclusive of six areas, to wit: (a) logic, (b) geometry, (c) algorithm, (d) mathematical analysis, (e) probability and statistics, and (f) discrete mathematics.

Research Instrument

To obtain the needed data of this study used a constructed survey questionnaire as the principal data gathering instrument. Another instruments was the pre- validated 60 items mathematics achievement test taken from books which is used to measure the students achievement in logic, geometry, algorithm, mathematical analysis, probability and statistics, and discrete mathematics. The validation was conducted in order to determine whether the test items adapted from the books were suited to the level of the mathematical ability of the respondent to the students in Eastern Visayas State University (EVSU) Tacloban City and after the administration of the first and second administration of the questionnaire and the tests the correlation coefficient was computed and was posted at 0.886, which indicated that the test was both reliable and valid.

Statistical Tool

Descriptive as well as inferential statistical tools were used to compute, analyse and interpret the data of the study. These statistical tools used were frequency count, percentage, mean, range, weighted mean, Pearson Product moment Coefficient of Correlation (Pearson r) and Fisher's t-test.

Data Gathering Procedure

The researcher started gathering the needed data by requesting permission from the President of the Samar State University (SSU), Catbalogan City, Samar follow her the conduct of the study among college students. Upon his approval, the researcher got the list of enrolees per college from the University Registrar Office, inclusive of school year 2013-2014, to proceed with the sampling of the respondents of the study.

Then, the researcher communicated with the deans of the different colleges to ask for permission to conduct the study among the students of their respected colleges. After their approval was obtained, the researcher distributed the questionnaire as well as the Mathematics Achievement Test among the respondents, hopefully, during their classes to ensure the presence of the respondents during the data collection period. The respondents were given considerable amount of time to answer the instruments of the study. After which, the researcher personally retrieved the answered instruments to ensure 100 percent retrieval.

Before proceeding with the tallying of the data, the researcher went over the student-respondents' permanent records at the University Registrar's Office to get information about their mathematics as well as computer subjects taken.

Finding

The following were the salient findings of the study:

1. The student-respondents are characterized by having a mean age of 20.08 years old, majority of them are females, with average income of Php. 9,240.00, having parents who are at least high school graduates enrolled in different courses offered in SSU, taking the math subjects specified in their curriculum pursued, have computer subjects as specified in their curriculum and majority of them had no training in computers excepts those who are taking courses related to computers and those with applications of computers in their course. The respondents are slightly anxious towards computers, as indicated by the mean rating of 3.92 and highly confident based on the obtained mean value of 4.00 liked much computers as indicated by the mean obtained of 3.79 and perceived computers as very useful as indicated by the mean obtained of 4.02.
2. Students' level of computer utilization in terms of knowledge of basic computer concepts the mean score obtained is eight out of the 20 items interpreted as moderately knowledgeable. As possession of basic computer skills, the respondents obtained a mean of 3.16 interpreted as moderately skilled. As to frequency of

utilization the obtained mean is 3.15 interpreted as frequent as three times a week; as to type of utilization the obtained mean is 4.00 interpreted as moderately useful.

3. The students respondents level of math achievement along the following areas based on the mean obtained for the ten items test for each area are: logic-3, geometry-5, algorithm-5, math analysis-5, probability and statistics-5, and discrete math-5.
4. The relationship between mathematics achievement and the respondents' computer utilization are as follows;
   a. For math achievement and knowledge of basic computer concepts the computed r = -0.0688 and the computed t = -1.285, the relationship is not significant;
   b. For math achievement and possession of basic computer skills, the computed r = - 0.0224 and the computed t-value is -0.417, the relationship is not significant based on the computed t-value;
   c. For math achievement and frequency of utilization, the computed r = 0.0389 with the computed t-value of 0.7259, this t-value is not significant.
   d. For math achievement and type of computer utilization, the computed r-value is 0.0075 and the computed t-value of 0.1398, this r-value is not significant based on the computed t-value.
5. The relationship between respondents' computer utilization and student-related variates give the following results:
   a. The relationship between knowledge of basic computer concepts and the variates. For the variates age, sex, educational attainment of the parents, relevant computer training attended, and attitudes of the respondents towards computers with respect to computer anxiety, computer confidence, computer liking and computer usefulness obtained an r-value which is computed t-value is less than the critical t-value which is interpreted as not significant relationships. For the variates-average family monthly income, degree program pursued, mathematics subjects taken and computer subjects taken by the respondents, the obtained r-value are -0.1730 for degree program and -0.1719 for math subjects taken, these r-value have the following corresponding t-value 3.2724 and -3.2724 which is absolutely value is greater than the critical t-value of 1.96 at 0.05 level of significance, with df = 347(two- tailed), this shows that these two variates are significant;
   b. The relationship between possession of the respondents of basic computer skills and the variates which is significantly related to the possession of the respondents of the basic computer skills is attitudes of the respondents with respects to computer anxiety, computer confidence, computer liking, and computer usefulness, the obtained r-value are0.3984, 0.4371, 0.3768 and 0.4011 respectively, which corresponding t-value obtained are 8.0917, 9.05772, 7.5722 and 8.1567, the t-value are higher/greater than the critical t-value of t-value of 1.96, $\alpha = 0.05$ at df = 347(two –tailed);
   c. The relationship between frequency of computer utilization and the student-related variates reveal a computed r-value which is not significant for: 1) age, 2) sex, 3) mother educational attainment, and 4) attitude towards computer; and for the following students-related variates and the respondents frequency of computer utilization; 1) average family monthly income, 2) father's educational attainment, 3) degree program pursued, 4) math subjects taken, 5) computer subjects taken, and 6) relevant computer trainings and seminars attended. The r-value obtained for these variates-0.1054, 0.1489, -0.1442, -0. 1372, 0.3288 are significant based on the corresponding computed t-value, which are -1.9734, 2.8045, -2.7138, 6.4856, and 7.8129 respectively are significant.
   d. The relationship of computer utilization categorized as math related and others give a computed r-value which is significant for the varieties: 1) average family income per month, and 2) degree program pursued. The r-values are 0.1223 and 0.1110 with corresponding t-value of 2.2949 and 2.0827 respectively. These r-value are significant based on the computed t-value. For the varieties age, sex, parents educational attainment, math subjects taken, computer subjects taken, relevant computer trainings and seminars in computer attended, and their attitude towards computers with respect to computer anxiety, computer confidence, computer liking, and computer usefulness is significant.
6. The relationships between the level of mathematics achievement and following varieties revealed significant relationships based on the computed r-value; 1) average family income, 2) mother educational attainment, 3) degree pursued, and 4) math subjects taken. The r-value obtained for these variates and math achievement were as follows; 0.2286 for average family income, -0.156 for mother educational attainment, -0.2380, for degree program pursued, and 0.2559, for math subjects taken is significant based on the computed t- value.

Likewise, the relationship between age, sex, father educational attainment, math subject taken, computer subjects taken, relevant computer training and seminar attended, and respondents' attitude towards computer as to computer anxiety, computer confidence, computer liking and computer usefulness is not significant.

Table 1 Sampling Frame of the Study

Courses Pursued	Year Level			Total Sample (n)
	3rd	4th	5th	
BSITech	25	37	-	62
BSAS	8	10	-	18
BEED	28	-	-	28
BSE	5	43	-	48
BSTE	4	3	-	7
BSCE	7	10	10	27
BSCOE	4	10	7	21
BSECE	5	5	2	12
BSEE	7	5	8	20
BSIT	60	-	-	60
BSN	26	-	-	26
BSF	14	-	-	14
BSE Fishery	6	-	-	6
Total	199	123	27	349

Table 2 Age and sex distribution of the respondents

Age	Sex				Total	
	Male		Female			
	F	%	F	%	F	%
16	0	0	1	.38	1	0.29
17	7	8.33	30	11.32	37	10.60
18	10	11.90	56	21.13	66	18.91
19	12	14.29	65	24.53	77	22.06
20	27	32.14	44	16.60	71	20.34
21	7	8.33	28	10.57	35	10.03
22	1	1.19	7	2.64	8	2.29
23	3	3.57	7	2.64	10	2.87
24	4	4.76	8	3.02	12	3.44
25	8	9.52	5	1.89	13	3.72
26	1	1.19	2	0.75	3	0.86
27	1	1.19	4	1.51	5	1.43
28	0	0	0	0	0	0
29	1	1.19	3	1.13	4	1.15
30	2	2.38	5	1.89	7	2.01
Total	84	100.00	265	100.00	349	100.00
Mean	20.75 yrs.	-	19.87 yrs.	-	20.08 yrs.	-
SD	2.98	-	2.72 yrs.	-	2.805 yrs.	-

Table 3 Respondents' Average Family Monthly Income

Average Family Monthly Income (In Peso)	Frequency	Percentage
Below -Php 5,000.00	129	36.96
Php 5,001-Php 10,000	117	33.52
Php 10,001-Php 15,000	34	9.74
Php 15,001 - Php 20,000	23	6.59
Php 20,001 - Php 25,000	21	6.02
Php 25,001-Php 30,000	15	4.30
Php 30,001 - Php 35,000	4	1.15
Php 35,001-Php 40,000	1	0.29
Php 40,001-Php 45,000	2	0.57
Php 45,001-Php 50,000	1	0.29
More than Php 50,001	2	0.57
Total	349	100.00
Mean	Php 9,240.69	
SD	Php 8,207.75	

Table 4 Distribution of Parents' Educational Attainment

Educational Background	Parents			
	Father		Mother	
	Frequency	Percentage	Frequency	Percentage
Elementary Level	61	17.48	82	23.50
Elementary Graduate	7	2.01	19	5.44
High School Level	59	16.91	30	8.60
High School Graduate	107	30.66	50	14.33
College Level	46	13.18	123	35.24
College Graduate	68	19.48	44	12.61
Graduate/Post- Graduate	1	0.29	1	0.29
Total	349	100	349	100

Table 5 Respondents' Degree Program/Courses Pursued

Degree Program/Courses Pursued	Frequency	Percentage	Rank
BSITech	62	17.77	1
BSAS	18	5.16	9
BEED	28	8.02	4
BSE	48	13.75	3
BSTE	7	2.01	12
BSCE	27	7.74	5.5
BSCOE	21	6.02	7
BSECE	12	3.44	11
BSEE	20	5.73	8
BSIT	60	8.02	2
BSN	26	7.74	5.5
BSF	14	4.01	10
BSE Fishery	6	1.72	13
Total	349	100.00	

Table 6 Math Subjects Taken by the Respondents

Mathematics Subjects Taken	Frequency	Percentage
Basic Math	89	25.50
College Algebra	349	100.00
Advance College Algebra	25	7.16
Abstract Algebra	11	3.15
Linear Algebra	87	24.93
Plane Trigonometry	279	79.94
Calculus	14	4.01
Analytic Geometry	195	55.87
Differential Calculus	195	55.87
Integral Calculus	185	53.01
Differential Equations	185	53.01
Plane Geometry	21	6.02
Solid Geometry & Spherical Trigonometry	21	6.02
Basic Statistics	97	27.79
Probability & Statistics	120	34.38
Number theory	11	3.15
Industrial math	71	20.34
Solid Mensuration	59	16.91
Practical Math	10	2.87
Fundamental Concepts of Math	11	3.15
Numerical Analysis	11	3.15
Complex Variables	25	7.16
Advance Engineering Math	57	16.33

Table 7 Computer Subjects Taken by the Respondents

Computer Subjects Taken	Frequency	Percentage
Information and communication Tech/Computer Tech	172	49.28
Principles of Programming	103	29.51
Discrete Structures	83	23.78
Data Structure & Algorithm Analysis	83	23.78
Logic Circuits & Switching Theory	17	4.87
Computer System Organization with Assembly Language	44	12.61
ADV logic Circuit Design	17	4.87
Computer System Organization with assembly Language	24	6.88
Intro. To Artificial Intelligence	17	4.87
Structure of Programming Language	79	22.64
Software Engineering	44	12.61
Theory of Computing	44	12.61
Operating System	76	21.78
Formal & Analytical Techniques	7	2.01
Data Communication and Networking	44	12.61
I/O Memory System	7	2.01
Management Information System	44	12.61
Computer design Project	69	19.77
COE laws, Contract & Ethics	7	2.01
Seminars and Field trips	7	2.01
Computer Applications	20	5.73
Microprocessor System	2	0.57
Computer Concepts Fundamentals	100	28.65
AUTOCAD Concepts Fundamentals	20	5.73
Basic computer w/ Internet	60	17.19
Computer literacy	62	17.77
Digital Electronics	62	17.77
C- language	62	17.77
File Organization	62	17.77
Database Management	62	17.77
Theory of automata	62	17.77
Multimedia System	37	10.60
Internet	37	10.60

Table 8 Respondents' Relevant Computer Training Attended

Relevant Computer Training/Seminar Attended	Frequency	Percentage
Data Communication	62	17.77
Lennox	37	10.60
Philippine Congress Information technology	2	0.57
Microsoft Access PHP Programming	62	17.77
Networking	37	10.60
Multi-Media	62	17.77
SPSS 2012	18	5.16
Special Application in Electronic Engineering 20012	5	1.43

Table 9 Respondents' Attitudes towards Computer

	Attitude towards Computer	SA (5)	A (4)	U (3)	D (2)	SD (1)	TOTAL	Wtd X	I
	Computer Anxiety								
1.	I feel comfortable working with computer.	133 (665)	174 (696)	25 (75)	1 (2)	16 (16)	349	4.17	SA/ NNA
2.	I would feel Ok about trying a new problem on the computer.	35 (165)	254 (448)	42 (84)	3 (6)	15 (15)	349	2.80	U/MA
3.	Computer make me feel easy and focused.	95 (475)	172 (688)	78 (234)	4 (8)	0 (0)	349	4.03	A/SA
4.	I get excited thinking about computers.	53 (265)	212 (848)	68 (204)	12 (24)	4 (4)	349	3.85	A/SA
5.	I believe that working with computers would be enjoyable and stimulating.	137 (685)	176 (704)	33 (99)	2 (4)	1 (1)	349	4.28	A/SA
6.	I feel elated about using computers in encoding my projects and other school paper works.	197 (985)	68 (272)	69 (207)	16 (32)	1 (1)	349	4.29	A/SA
7.	I feel liberating feeling knowing how to access the internet and other computer applications	50 (250)	138 (552)	143 (429)	18 (36)	0 (0)	349	3.63	A/SA
8.	Computer allow me to explore those aspects of daily life that I feared about in the past.	102 (510)	152 (608)	53 (159)	25 (50)	17 (17)	349	3.85	A/SA
9.	Computers do not scare me at all.	60 (300)	122 (488)	130 (390)	16 (32)	23 (23)	349	3.53	A/SA
10.	I believe I would work harder if I could use computers more often.	68 (340)	176 (704)	80 (240)	2 (4)	25 (25)	349	3.76	A/SA
	Total							31.60	
	Mean							3.16	U/MA
	Computer Confidence								
1.	The challenge of solving problems in mathematics using a computer appeal to me.	52 (260)	112 (448)	130 (390)	20 (40)	37 (37)	349	3.37	U/MA
2.	I feel strong and mighty when my classmates talk about computers and I have something to share with them.	64 (320)	123 (492)	118 (354)	3 (6)	1 (1)	349	3.37	U/MA
3.	When there is a problem with a computer run that I cannot immediately solve, I would stick with it until I have the answer.	54 (270)	204 (816)	58 (174)	17 (34)	16 (16)	349	3.75	A/HC
4.	I have a lot of self-confidence when it comes to working with computers.	85 (425)	108 (432)	120 (360)	20 (40)	16 (16)	349	3.65	A/HC
5.	I hesitate to use a computer for fear of making mistakes I cannot correct.	115 (575)	129 (516)	85 (225)	18 (36)	2 (2)	349	3.88	A/HC
6.	I am confident that computers can teach mathematics.	108 (540)	130 (520)	95 (285)	15 (30)	1 (1)	349	3.94	A/HC
7.	Having a computer available to me could get a better picture of the facts and figures.	198 (990)	112 (448)	47 (141)	2 (4)	0 (0)	349	4.54	A/HC
8.	Studying about computers is worth-while.	190 (950)	88 (352)	52 (156)	3 (6)	16 (16)	349	4.20	A/HC
9.	Learning to operate computers is like learning any new skills-the more you practice, the better you become.	196 (980)	128 (512)	9 (27)	16 (32)	0 (0)	349	4.44	A/HC
10.	If given the opportunity, I would like to learn about the use of computers.	201 (1005)	96 (384)	49 (143)	1 (2)	3 (3)	349	4.40	A/HC
	Total							39.54	
	Mean							3.95	A/HC
	Computer Liking								
11.	I enjoy doing the things with computers.	140 (700)	134 (536)	58 (174)	16 (32)	1 (1)	349	4.13	A/LM
12.	I enjoy computer games very much.	140 (700)	101 (504)	75 (225)	33 (66)	0 (0)	349	4.00	A/LM
13.	I believe that the more often teachers use computers, the more I will enjoy school.	86 (430)	154 (616)	75 (225)	34 (68)	1 (1)	349	3.84	A/LM
14.	I would like working with my assignments and projects in math using computers.	64 (320)	126 (504)	124 (372)	19 (380)	16 (16)	349	3.58	A/LM
15.	I understand why some people spend so much time working with computers and seem to enjoy it.	73 (365)	196 (784)	78 (234)	1 (2)	1 (1)	349	3.97	A/LM
16.	Computer and their applications such as the Internet can be exciting.	139 (695)	144 (576)	50 (150)	15 (30)	1 (1)	349	4.16	A/LM
17.	I like to scan computer journals.	32 (160)	159 (636)	123 (369)	3 (6)	32 (32)	349	3.45	U/L
18.	I would like people to think I am the outstanding student in a computer class.	54 (207)	167 (668)	82 (156)	43 (86)	3 (3)	349	3.21	U/L
19.	I like working with machines that are smarter than I am.	78 (390)	103 (412)	122 (366)	30 (60)	16 (16)	349	3.65	A/LM
20.	I would like to spend more time using a computer.	44 (220)	146 (584)	78 (234)	18 (36)	33 (33)	349	3.17	U/L
Total		-	-	-	-	-	-	39.20	
	Mean	-	-	-	-	-	-	3.92	A/LM

	Computer Usefulness								
21.	Computer can be used to save lives such as an tracking down crimes and those involved.	110 (550)	158 (612)	51 (158)	17 (34)	18 (18)	349	3.92	A/HU
22.	If I need computer skills for any career choice, then I will surely develop them.	166 (830)	73 (292)	90 (270)	6 (12)	14 (14)	349	4.06	A/HU
23.	using the computer has increased my interaction with my classmates and teachers because we find common interest in computers.	110 (550)	144 (576)	61 (183)	34 (68)	0 (0)	349	4.06	A/HU
24.	Computer are necessary tools in both educational and work settings.	124 (620)	118 (472)	76 (228)	7 (14)	30 (30)	349	3.87	A/HU
25.	Computers help me organize my allowance through the ATM which is operated by computers.	122 (610)	69 (276)	99 (297)	57 (144)	2 (2)	349	3.72	A/HU
26.	Knowing something about computers help me earn a living.	122 (610)	145 (580)	50 (150)	30 (60)	2 (2)	349	4.02	A/HU
27.	It is important for us students, to learn about computers in order to be informed citizens by accessing the Internet for current events.	110 (505)	180 (720)	40 (120)	28 (56)	0 (0)	349	4.01	A/HU
28.	With computers it is possible to do practical things.	125 (625)	174 (696)	50 (150)	1 (2)	0 (0)	349	4.22	A/HU
29.	Knowing how to work with computers will increase my job possibilities.	150 (750)	157 (628)	26 (78)	16 (32)	0 (0)	349	4.26	A/HU
30.	I will use computers many ways in my life.	138 (690)	136 (612)	51 (554)	70 (140)	4 (4)	439	4.16	A/HU
	Total							40.00	
	Mean							4.00	A/HU
	Grand Total							15.00	
	Grand Mean							3.76	A/VFA

Legend:
4.51- 5.0 Strongly agree(SA)/Not Anxious at All (NNA)/Very Highly Confident (VHC)/Liked very much(LVM)/Very Highly Useful (VHU)/ Highly Favourable Attitude
3.51-4.500 Agree(A)/Slightly Anxious(SA)/ Highly Confident (HC)/Liked Much(LM)/Highly Useful (HU)/Favourable Attitude
2.51-3.50 0 Uncertain(U)/Moderately Anxious (MA)/ Moderately Confident (MC)/Liked (L)/Moderately Useful (MU)/ Neutral Attitude
1.51-2.50 Disagree(DA)/highly Anxious (HA)/Less Confident (LC)/Less Liked(LL)/ Less Useful (LU)/ Unfavourable Attitude
1.00-1.50 Strongly Disagree(SDA)/Very Highly Anxious (VHA)/ Not Confident (NC)/Do not liked at all(NLA)/Not Useful at all (NUA)/Highly Unfavourable Attitude

Table 10 Respondents' Knowledge of basic computer Concepts

Basic Computer Concepts	**Correct Responses Counts**	**Mean Equivalent Rating**	**Interpretation**
1. Input device	145	2.66	MK
2. Central processing unit (CPU)	51	1.58	LK
3. Output device(s)	113	2.30	LK
4. Printers	149	2.71	MK
5. Auxiliary storage devices	191	3.19	MK
6. Floppy disk	176	3.02	MK
7. Screen display	88	2.01	LK
8. Grammar error	36	1.41	VLK
9. ENTER key	84	1.96	LK
10. Paragraphs alignment in Word ®	64	1.73	LK
11. Saving file in Word	131	2.50	LK
12. Printed copy	98	2.12	LK
13. Margins and settings	125	2.43	LK
14. Auto Correct feature	95	2.09	LK
15. Internet	248	3.84	HK
16. Excel ® feature	152	2.74	MK
17. Worksheet	128	2.47	LK
18. Navigating the worksheet	143	2.64	MK
19. Correcting error	143	2.64	MK
20. Saving file in Excel ®	86	1.99	LK

Summary

Indicators	**Frequency**	**Percentage**	**Equivalent Mean Rating**
Very Highly Knowledgeable	0	0	-
Highly knowledgeable	11	3.15	3.95
Moderately Knowledgeable	127	36.39	2.94
Less Knowledgeable	171	49.00	2.26
Very less Knowledgeable	40	11.46	1.63
Mean Score	8	Less knowledgeable	
SD		7	

Legend: scores Equivalent in Scales in Basic Knowledge of Computers
17-20-Very Highly Knowledgeable(VHK)
13-16 - Highly Knowledgeable(HK)
9-12 - Moderately Knowledgeable(MK)
5-8 -Less Knowledgeable(LK)
0-4 - Very Less Knowledgeable(VLK)

Table 11 Basic Computer Skills possessed by the Respondents

Computer Skills	VHS (5)	VS (4)	MS (3)	SS (2)	NS (1)	Total	Wtd. Mean	Interpret.
1. Starting a computer such as turning on the computer, monitor and printer	78 (390)	123 (492)	57 (171)	70 (140)	21 (21)	349	3.48	HS
2. Exploring the different programs installed in the computer such as Microsoft Encarta Encyclopedia, virus protection programs, online mathematics handbooks, and others.	33 (165)	122 (488)	28 (84)	76 (152)	88 (88)	349	2.80	MS
3. encoding and saving the documents and manuscripts	85 (425)	76 (304)	105 (162)	81 (162)	50 (50)	349	3.46	MS
4. Formatting encoded and saved documents, particularly those that include graphs, charts, tables, and others.	52 (260)	107 (428)	101 (303)	81 (162)	50 (50)	349	3.21	MS
5. creatingmultimedia presentation for school reports, especially those including graphs, charts, tables, and others.	30 (150)	75 (300)	82 (246)	139 (278)	23 (23)	349	2.86	MS
6. Using more complex program in the computer such as data analysis using SPSS, entering data into existing spreadsheets, creating charts and graphs from spreadsheets and others.	30 (150)	84 (336)	89 (267)	60 (120)	86 (86)	349	2.75	MS
7. Installing new programs or software such as on-line games, virus protection software and mathematics based software.	29 (145)	81 (324)	83 (249)	88 (176)	68 (68)	349	2.76	MS
8. Surfing the internet for various purposes such as sending e-mail messages, chatting, researching for references materials needed in mathematics and others.	108 (540)	100 (400)	26 (78)	65 (130)	50 (50)	349	3.43	MS
9. Downloading documents from the internet such as review materials in math and other subjects.	89 (445)	61 (244)	76 (228)	83 (166)	40 (40)	349	3.22	MS
Communicating with family, relatives, and friends outside the Philippines via facebook, twetters, instagram etc.	80 (400)	99 (396)	128 (348)	27 (54)	15 (15)	349	3.58	MS
Total	-	-	-	-	-	-	31.55	
Mean	-	-	-	-	-	-	3.16	MS

Legend:
4.51- 5.0 Very Highly Skilled (VHS)/SA
3.51-4.500 Highly Skilled (HS)/A
2.51-3.50 Moderately Skilled (MS)/U
1.51-2.50 Less Skilled (LS)/D
1.00-1.50 Not Skilled(NS)/SD

Table 12 Frequency of utilization of the Respondents

Frequency of Utilization	Frequency	Percentage
Very Highly frequent(VHF)/Everyday & at least once a day	108	30.95
Very Frequent (VF)/ five times a week	136	38.97
Moderately frequent (MF)/ Thrice a week	40	11.46
Less frequent (LF)/Once a week	30	8.60
Very Less frequent (VLF)/ Once a month	35	10.03
Total	349	100.00
Mean	3 times a week	Moderately frequent
SD	Once a month	

Table 13 Type of Computer Utilization

Type of Computer Utilization	VM (5)	M (4)	Mo (3)	L (2)	NA (1)	Total	Wtd. X	Inter pret.
Math - Related								
1. Using computer to know about current development in mathematics	24 (120)	138 (552)	91 (273)	50 (100)	46 (46)	349	3.13	Mo
2. Using computer with math software to solve mathematics problems.	20 (100)	112 (448)	99 (297)	85 (170)	33 (33)	349	3.0	Mo
3. Utilizing computers with Internet in sending and receiving electronic mail from people around the globe, related to, mathematics.	45 (225)	114 456)	84 (252)	57 (114)	49 (49)	349	3.14	Mo
4. Uses computers for processing large numbers or data given as assignments and project in mathematics.	22 (110)	109 (436)	130 (390)	65 (130)	23 (23)	349	3.12	Mo
5. Uses computers as reference materials for projects, assignments, exam and quizzes in mathematics.	36 (180)	142 (568)	114 (342)	41 (82)	16 (16	349	3.40	Mo
Total	-	-	-	-	-	-	15.79	
Mean	-	-	-	-	-	-	3.16	Mo
Other uses								
1. Using computers to chat and make friends with people through the Internet.	118 (590)	125 (500)	37 (111)	37 (74)	32 (32)	349	3.74	M
2. Using the computers to play on-line games.	72 (360)	93 (372)	99 (297)	73 (146)	12 (12)	349	3.40	Mo

3. Utilizes computers to make multi-media presentations	37 (185)	78 (312)	58 (174)	79 (158)	97 (97)	349	2.65	Mo
4. Uses computers to encode and save files.	45 (225)	138 (552)	72 (216)	69 (138)	25 (25)	349	3.31	Mo
5. Utilizes computers to avail of electronic commerce such as withdraw money from they ATM and other such activities.	36 (180)	40 (160)	103 (309)	93 (186)	77 (770)	349	2.62	Mo
Total	-	-	-	-	-	-	15.72	
Mean	-	-	-	-	-	-	3.15	Mo
Grand total	-	-	-	-	-	-	31.51	
Grand Mean	-	-	-	-	-	-	3.15	Mo

Legend:
4.51- 5.0 Very Much Utilized (VMU)/SA
3.51-4.50Much Utilized (MU)/A
2.51-3.50 Moderately Utilized (M)/U
1.51-2.50 Less Utilized (LU)/D
1.00-1.50 NotUtilized(NU)/SD

Table 14 Level of Math Achievement Based on Scores in Math Achievement Test

Level of Math Achievement (Scores in Test)	**Areas in Mathematics**					
	Logic	**Geometry**	**Algorithm**	**Math Analysis**	**Probability & Statistics**	**Discrete Math**
10	0	2	1	1	1	1
9	0	8	2	5	2	5
8	2	7	1	8	2	20
7	3	10	31	20	59	100
6	24	80	31	52	60	61
5	8	39	137	102	82	59
4	100	120	80	140	119	80
3	15	30	25	8	12	10
2	181	47	34	8	9	5
1	5	3	6	5	3	4
0	12	3	1	0	0	1
Total	349	349	349	349	349	349
Mean	2.94	4.24	4.56	4.83	5.04	5.58
SD	1.46	1.74	1.48	1.34	1.38	1.62
Interpretation	Fair	good	Good	good	Good	Very Good

Legend: Excellent-10 Superior 8-9, Very Good 6-7, Good 4-5, Fair 2-3, Poor 0-1

Table 15 Relationship between Respondents' Computer Utilization and Math Achievement

Computer Utilization	**rxy**	**Fisher's t**	**Critical t df= 347 α= .05**	**Evaluation**
Knowledge of Basic Computer Concepts	-0.0688	-1.2850	1.96	NS
Possession of Basic Computer skills	-0.0224	-0.4170	1.96	NS
Frequency of Computer Utilization	0.0389	0.7259	1.96	NS
Type of Computer Utilization	0.0075	0.1398	1.96	NS

Table 16 Relationship between Respondents' Computer Utilization and Age

Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.0094	-0.1754	1.96	NS
Possession of Basic Computer skills	-0.082	0.1535	1.96	NS
Frequency of Computer Utilization	0.0071	0.1325	1.96	NS
Type of Computer Utilization	0.0590	1.0980	1.96	NS

Table 17 Relationship between Respondents' Computer Utilization and Sex

Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.0195	-1.3630	1.96	NS
Possession of Basic Computer skills	0.0576	1.0752	1.96	NS
Frequency of Computer Utilization	0.0920	1.7210	1.96	NS
Type of Computer Utilization	0.0956	1.7983	1.96	NS

Table 18 Relationship between Respondents' Computer Utilization and Average Family Income per Month

Computer Utilization	**rxy**	**Fisher's t**	**Critical t df= 347 α= .05**	**Evaluation**
Knowledge of Basic Computer Concepts	-0.2065	-3.9304	1.96	S
Possession of Basic Computer skills	-0.1008	-0.2005	1.96	NS
Frequency of Computer Utilization	-0.1054	-1.9734	1.96	S
Type of Computer Utilization	-0.1223	-2.2949	1.96	S

Table 19 Relationship between Respondents' Computer Utilization and Parent's Educational Attainment

Computer Utilization	**rxy**	**Fisher's t**	**Critical t df= 347 α= .05**	**Evaluation**
Knowledge of Basic Computer Concepts				
Father	0.2034	-0.4368	1.96	NS
Mother	-0.0526	-0.9819	1.96	NS
Possession of Basic Computer skills				
Father	0.0334	0.1489	1.96	NS
Mother	0.0386	0.7196	1.96	NS
Frequency of Computer Utilization				
Father	0.1489	2.8045	1.96	S
Mother	0.0933	1.7452	1.96	NS
Type of Computer Utilization				
Father	0.7017	1.3395	1.96	NS
Mother	0.0684	1.2764	1.96	NS

Table 20 Relationship between Respondents' Computer Utilization as to Knowledge of basic Computer Concepts and the Variates

Variates	Pearson r - value	Fisher's t - value	Critical t - value df= 347 α= .05	Evaluation
Age	-0.0094	-0.1754	1.96	NS
Sex	-0.0195	-0.3630	1.96	NS
Average Family Monthly Income	-0.2065	-3.9304	1.96	S
Parents' Educational Attainment				
Father	0.0234	-0.4368	1.96	NS
Mother	-0.0526	-0.9819	1.96	NS
Degree Program Pursued	-0.1730	-3.2724	1.96	S
Math Subject taken	-0.1719	-3.2734	1.96	S
Computer Subjects Taken	-.1730	-3.2734	1.96	S
Relevant Computer Trainings & Seminars Attended	0.0035	0.0650	1.96	NS
Attitude Towards Computer				
Computer Anxiety	-0.0307	-0.5716	1.96	NS
Computer Confidence	-0.0385	-0.7172	1.96	NS
Computer liking	-0.0555	-1.1035	1.96	NS
Computer Usefulness	0.0277	-0.5163	1.96	NS

Table 21 Relationship between Respondents' Computer Utilization and Degree Program Pursued

Areas of Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.1730	-3.2734	1.96	S
Possession of Basic Computer skills	-0.0048	-0.0995	1.96	NS
Frequency of Computer Utilization	-0.1442	-2.7138	1.96	S
Type of Computer Utilization	0.1110	2.0927	1.96	S

Table 22 Relationship between Respondents' Computer Utilization and Grades in Mathematics Subjects Taken

Areas of Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.1719	-3.2734	1.96	S
Possession of Basic Computer skills	-0.0104	0.1935	1.96	NS
Frequency of Computer Utilization	-0.1372	-2.5805	1.96	S
Type of Computer Utilization	0.0834	1.5594	1.96	NS

Table 23 Relationship between Respondents' Computer Utilization and Grades in Computer Subjects Taken

Areas of Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.1730	-3.2735	1.96	S
Possession of Basic Computer skills	-0.0285	-0.5307	1.96	NS
Frequency of Computer Utilization	0.3288	6.4856	1.96	S
Type of Computer Utilization	-0.0397	0.7395	1.96	NS

Table 24 Relationship between Respondents' Computer Utilization and Relevant Trainings and Seminars Attended

Areas of Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Knowledge of Basic Computer Concepts	-0.0035	-0.0650	1.96	NS
Possession of Basic Computer skills	-0.0165	-0.3082	1.96	NS
Frequency of Computer Utilization	0.3868	7.8129	1.96	S
Type of Computer Utilization	-0.0327	-0.6092	1.96	NS

Table 23 Relationship between Respondents' Computer Utilization and Grades in Computer Subjects Taken

Areas of Computer Utilization	rxy	Fisher's t	Critical t df= 347 α= .05	Evaluation
Computer Anxiety				
Knowledge of Basic Computer Concepts	-0.0307	-0.1754	1.96	NS
Possession of Basic Computer skills	0.3954	8.0197	1.96	S
Frequency of Computer Utilization	-0.0095	0.1762	1.96	NS
Type of Computer Utilization	0.0464	0.7527	1.96	NS
Computer Confidence				
Knowledge of Basic Computer Concepts	-0.0385	-0.7172	1.96	NS
Possession of Basic Computer skills	0.4371	9.0523	1.96	S
Frequency of Computer Utilization	-0.0324	-0.6039	1.96	NS
Type of Computer Utilization	0.0714	1.3345	1.96	NS
Computer Liking				
Knowledge of Basic Computer Concepts	-0.0555	-11035	1.96	NS
Possession of Basic Computer skills	0.3768	7.5772	1.96	S
Frequency of Computer Utilization	0.0398	0.7417	1.96	NS
Type of Computer Utilization	0.0464	0.8659	1.96	NS
Computer Usefulness				
Knowledge of Basic Computer Concepts	-0.0277	-0.5163	1.96	NS
Possession of Basic Computer skills	0.4011	8.1567	1.96	S
Frequency of Computer Utilization	0.0174	0.3247	1.96	NS
Type of Computer Utilization	0.0653	1.2191	1.96	NS

Table 26 Relationship between Respondents' Computer Utilization as to Possession of Computer Skills and the Variates

Variates	Pearson r - value	Fisher's t - value	Critical t - value df= 347 α= .05	Evaluation
Age	0.0082	0.1535	1.96	NS
Sex	0.0576	1.0752	1.96	NS
Average Family Monthly Income	0.0108	0.2005	1.96	NS
Parents' Educational Attainment				
Father	0.0334	0.1489	1.96	NS
Mother	0.0386	0.7196	1.96	NS
Degree Program Pursued	-0.0048	-0.0895	1.96	NS
Math Subject taken	-0.0104	0.1935	1.96	NS
Computer Subjects Taken	-0.0285	0.5307	1.96	NS
Relevant Computer Trainings & Seminars Attended	-0.0165	-0.3082	1.96	NS
Attitude Towards Computer				
Computer Anxiety	0.3984	8.0917	1.96	S
Computer Confidence	0.4371	9.0523	1.96	S
Computer liking	0.3768	7.5772	1.96	S
Computer Usefulness	0.4011	8.1567	1.96	S

Table 27 Relationship between Respondents' Computer Utilization as to Frequency of Computer Utilization and the Variates

Variates	Pearson r - value	Fisher's t - value	Critical t - value df= 347 α= .05	Evaluation
Age	0.0071	0.1325	1.96	NS
Sex	0.0920	1.7210	1.96	NS
Average Family Monthly Income	-0.1054	-1.9734	1.96	S
Parents' Educational Attainment				
Father	0.1489	2.8045	1.96	S
Mother	0.0933	1.7452	1.96	NS
Degree Program Pursued	-0.1442	-2.7138	1.96	S
Math Subject taken	-0.1372	-2.5805	1.96	S
Computer Subjects Taken	0.3288	6.4856	1.96	S
Relevant Computer Trainings & Seminars Attended	0.3868	7.8129	1.96	S
Attitude Towards Computer				
Computer Anxiety	-0.0095	-0.1762	1.96	NS
Computer Confidence	-0.0324	-0.6039	1.96	NS
Computer liking	0.0398	0.7417	1.96	NS
Computer Usefulness	0.0174	0.3247	1.96	NS

Table 28 Relationship between of Type of Computer Utilization and the Variates

Variates	Pearson r - value	Fisher's t - value	Critical t - value df= 347 α= .05	Evaluation
Age	-0.0590	-1.0980	1.96	NS
Sex	0.0956	1.7883	1.96	NS
Average Family Monthly Income	0.1223	2.2949	1.96	S
Parents' Educational Attainment				
Father	0.0717	1.3385	1.96	NS
Mother	0.0684	1.2764	1.96	NS
Degree Program Pursued	0.1110	2.0827	1.96	S
Math Subject taken	0.0834	1.5594	1.96	NS
Computer Subjects Taken	-0.0397	0.7395	1.96	NS
Relevant Computer Trainings & Seminars Attended	-0.0327	-0.6092	1.96	NS
Attitude Towards Computer				
Computer Anxiety	0.0404	0.7525	1.96	NS
Computer Confidence	0.0714	1.3325	1.96	NS
Computer liking	0.0464	0.8659	1.96	NS
Computer Usefulness	0.0653	1.2191	1.96	NS

Table 29 Relationship between Respondents' Mathematics Achievement and the Variates

Variates	Pearson r - value	Fisher's t - value	Critical t - value df= 347 α= .05	Evaluation
Age	-0.0380	0.7000	1.96	NS
Sex	-0.1023	-1.9148	1.96	NS
Average Family Monthly Income	0.2286	4.3745	1.96	S
Parents' Educational Attainment				
Father	-0.0540--	-0.9980	1.96	NS
Mother	0.1566	-2.9541	1.96	S
Degree Program Pursued	-0.2380	4.5654	1.96	S
Math Subject taken	0.2559	4.9308	1.96	S
Computer Subjects Taken	-0.0282	-0.5249	1.96	NS
Relevant Computer Trainings & Seminars Attended	0.0129	0.2397	1.96	NS
Attitude Towards Computer				
Computer Anxiety	0.0175	-0.3257	1.96	NS
Computer Confidence	0.0187	0.3478	1.96	NS
Computer liking	0.0411	-0.7654	1.96	NS
Computer Usefulness	0.0393	0.7321	1.96	NS

CONCLUSIONS

The following conclusions were based on the findings of the study:

1. The respondents' possess characteristics, which are present in college students enrolled in degree programs in college in Catbalogan City, Samar in terms of age, sex, average family income, etc.
2. The respondents are moderately knowledgeable as to basic computer concepts, moderately skilled in computer utilization, utilized computers on the average of three times a week and used computers both for math related learning and other used.
3. The respondents have good mathematics achievement based on the 60 items test.
4. The computer utilization of the respondents is not significantly related to their mathematics achievement.
5. The computer utilization of the respondents and the varieties reveal significant relationships for some of the varieties such as for knowledge of basic computer concepts, degree program pursued and mathematics subjects taken are significantly related; possession of the respondents of basic computer skills in related to computer attitudes as measured by computer anxiety, computer confidence, computer liking and computer usefulness; frequency of utilization is related to average family income, educational attainment of the father, degree program pursued, average grade in math, and number of computer subjects taken. The type of computer utilization is related to average family income and degree program pursued.
6. The respondents math achievement is related to average family monthly income, degree program pursued, mother educational attainment, and number of math subjects.

Recommendations

The following are the recommendations based on the findings of the study:

1. There is a need for the teacher/instructor teaching computers to see to it that the students should at least know the basic knowledge of computer concepts and have basic computer skills.
2. Mathematics teachers/instructor should give exercises/lessons utilizing the computer to free their students to be able to utilized computer thus they will acquire knowledge and possess skills for utilizing computers.
3. Computers teachers/instructors should assess the knowledge of their students in basic computer concepts and also assess them as to possession of basic computer skills so that their students will have no anxiety, develop self- confidence toward computer utilization and should guide them in their type of computer utilization and frequency of utilization.
4. Computers teachers/instructors should see and talk with the parents of their students as to working together for enhance performance in computer utilization of the students.

5. Mathematics teachers/instructors should consider their students computer knowledge and skills before giving them problems in which they will use the computers. This will lead to students' letting others solve for their math problems if they don't know how to use the computer to solve their problem.
6. The Internet Hub in which students have internet account should program the students' utilization of their computer time, and should assess the students in their computer utilization just in case, they need assistance.
7. All teachers should encourage students to utilized computer since, this technology is available and to be competitive in their study and future works, they have to learn to utilized the computers, however, they should be cautioned of all the ill-effects of these media.
8. Another research should be conducted to validate the findings of the study.

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