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Utilization of Computer -Assisted Instruction in Grade 8 Mathematics

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Abstract *– This study aimed to utilized computer-assisted instruction in Grade 8 Mathematics in Tagudin National High School, Mabini, Pangasinan. Specifically, this study determined the following: First, it determined the profile of the Grade 8 students of Tagudin National High School for the school year 2015-2016. Second, it identified the performance of the student before and after their exposure to the different computer-assisted instructions and activities. Third, it focused into the difference between the performance of the students before and after their exposure to the different computer-assisted instructions and activities. Fourth, it also focused into the significant difference before and after exposure to the different computer-assisted instructions and activities across the profile variable of the students? The pretest – posttest experimental design was used in the study. Findings reveal there was a significant difference between the performance of the Grade 8 students before and after their exposure to computer-assisted instruction in Mathematics. Moreover, there was a significantly increase in the performance of the students after exposure to computer-assisted instruction. There was a significant difference in the performance of the students before and after exposure to computer-assisted instruction across their sex, age, monthly family income, and parents' highest educational attainment as a variable. It is recommended that: Computer-assisted instruction as a supplement to traditional classroom instruction is more effective than traditional instruction alone; and; School administrators should encourage Mathematics teachers to make use of the advance technology in teaching Mathematics.*

Keywords **–** computer-assisted instruction, exposure, performance, utilization,

INTRODUCTION

Filipino pupils and students perform poorly in Math, in the 2003 National Achievement Test; the average grade is 44% for elementary and 36% for secondary level. In Trends in Mathematics and Science (TIMMS) 2003, the Philippines ranked 41st out of 45 countries in Mathematics. There is a shortage of almost 50,000 teachers, and the result; teachers teaching multiple subjects.

The development of a child should not be one-sided, but rather, they should be equally developed in all aspects. They have the potential to learn in every subject area, and this potential must be nurtured in order to ensure that the learners are well-prepared for every endeavor.

The trends nowadays are interactive and more visual class discussion. This arouses students' interest and gives them the idea that mathematical concepts are indeed a fun learning activity. The rapid changes by technological and scientific advancement place a great demand on the individual's interaction with his environment. Living in the world today and in the future requires adapting oneself to environmental changes.

Pupils and students should seek new paths, break down barriers, and fearlessly seek solutions to challenges and critical problems. In this computer age, it is important to equip the pupils and students with knowledge and skills so they could cope up with the demands of modernization.

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Computer-assisted instruction including distance learning is fast becoming an integral part of higher education. Much of the current research has found that computer-assisted instruction is as effective as lecture-based instruction. Despite the wealth of studies that purport that students enrolled in computer-assisted instruction perform equally well as compared to their lecture-based counterparts, there is a high dropout rate associated with computer-assisted instruction including distance learning.

Technology is not only a product of a given culture but it also shapes the culture that created it. Archimedes was a fan of the lever, a piece of technology that must have been state-of-the-art during his time. Learning to use the fulcrum and lever is one of the things that separate human beings from other animal species (Mehlinger, 1996). While not every student exhibits this enthusiasm for technology it has been used all over the earth to make life easier.

The computer offers great potential for interactively with its simulated environment. Computer programs are proving to be unlimited in their stimulating activities in all areas of the curriculum. Mathematics and the computer form a perfect marriage. Learning mathematics is a highly individual experience. Computer-assisted Instruction is quite likely "the wave of the future." Methods to optimize the effectiveness of meshing CAI and classroom instruction should receive top priority.

The researcher wonder how effective is the use of computer-assisted math on pupils and students' problem solving. What are pupils and students' attitudes toward computer-assisted instruction in mathematics and, what effect their attitudes have on implementation of computer-assisted mathematics? This problem is the reason the researcher decided to look at the effect of computer-assisted mathematics program and later on, this research will answer those questions mentioned above.

STATEMENT OF THE PROBLEM

This study aimed to utilized computer-assisted instruction in Grade 8 Mathematics in Tagudin National High School, Mabini, Pangasinan. Specifically, this study sought to answer the following queries: 1) What is the profile of the Grade 8 students with respect to: (Age; Sex; Monthly Family income; and Parents' Highest Educational Attainment)? 2) What is the performance of the student before their exposure to computer-assisted instruction? 3) What is the performance of the students after their exposure to computer-assisted instruction? 4) Is there a significant difference between the performance of the students before and after their exposure to computer-assisted instruction? 5) Is there a significant difference between the performance of the students before and after exposure to computer-assisted instruction across their profile variable?

MATERIALS AND METHODS

Pretest-Posttest experimental design was used in the study. Standardize test from the Grade 8 Module was used in the study. The test was conducted to the students before and after exposure to computer-assisted instruction. This research study was conducted at Tagudin National High School, Mabini, Pangasinan located in the Western part of the province. This study considered the whole Grade 8 population of Tagudin National High School to give everyone the chance to participate in the study. It comprises of 4 sections and a total of 182 students as respondents to gather the needed information.

Data Gathering Procedure

This study used a questionnaire and a standardized test as a major instrument in gathering the needed data. The researcher seeks permission to the Superintendent of Schools Division Office I Pangasinan, Principal of Tagudin National High School to conduct the study among the Grade 8 students.

A fifty (50) items standardized test in Mathematics adapted from the DepEd

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Module covering the topics of Grade 8 for the whole school year was given to the students. Table and the scale of the corresponding score of the pupils would indicate there level of performances.

Treatment of Data

The data collected was encoded, tabulated, categorized, and analyzed as a basis for inferential analysis. The data gathered was classified and presented in tabular form based on the specific variables used in answer to the problems formulated in the study.

To determine the profile of the Grade 8 students, frequency counts, and percentage was utilized.

To determine the performance of the students before and after their exposure to computer-assisted instruction, a standardized test was utilized. The mean score and standard deviation were compared according to their section.

To determine the significant difference between the performance of the students before and after their exposure to computer-assisted instruction, paired-sample t-test was used and it was tested at .05 level of significance.

To determine the significant difference between the performance of the students before and after their exposure to computer-assisted instruction across their profile variables, t-test for independent sample was used and it was tested at .05 level of significance.

RESULTS AND DISCUSSION

The gathered data were organized, tabulated, statistically treated, analyzed and interpreted to have an easier understanding and clear visualization of the findings and to answer the specific questions of the study.

Profile of the Grade 8 Students

Table 1 presents the frequency counts, and percentage distribution of the profile of the respondents with respect to age, sex, monthly family income, father's highest educational attainment, and mother's highest educational attainment.

Table 1

Profile of the Grade 8 Students

Variable	Frequency	Percentage
Age		
13-14	119	65.4%
15-16	54	29.7%
17 and above	9	4.9%
Total	182	100%
Sex		
Male	103	56.6%
Female	79	43.4%
Total	182	100%
Monthly Family Income		
Php 10,000 and below	150	82.4%
Php 10,001 to Php 20,000	25	13.7%
Php 20,001 and above	7	3.8%

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Total	182	100%
Father's Highest Educational Attainment		
Elementary Undergraduate	26	14.3%
Elementary Graduate	30	16.5%
High School Undergraduate	16	8.8%
High School Graduate	87	47.8%
College Undergraduate	4	2.2%
Vocational Course Graduate	8	4.4%
College Graduate	11	6.0%
Total	182	100%
Mother's Highest Educational Attainment		
Elementary Undergraduate	11	6.0%
Elementary Graduate	19	10.4%
High School Undergraduate	21	11.5%
High School Graduate	103	56.6%
College Undergraduate	7	3.8%
Vocational Course Graduate	4	2.2%
College Graduate	17	9.3%
Total	182	100%

It can be noted from Table 1 that the majority age of the Grade 8 students is 13 – 14 years old. One hundred nineteen (119) or 65.4% students were 13-14 years old, fifty-four (54) or 29.7% students were 15-16 years old, and nine (9) or 3.8% were 17 years old and above. The result implies that most of the Grade 8 students of Tagudin National High School belong to the usual age bracket of a Grade 8 which is 13-14 years old. In terms of sex variable, majority of the Grade 8 students is male. One hundred three (103) or 56.6% students were male, while 43.4% or seventy-nine (79) students were female. In terms of monthly family income, most of the family of Grade 8 students has low monthly family income (Php 10,000 and below) which is 150 students or 82.4%, twenty-five (25) or 13.7% have a monthly family income ranging from Php 10,001 to Php 20,000, and only seven (7) students have a monthly family of Php 20,001 and above. It is also inferred on the school records, majority of the Grade 8 students belong to 4P's family. This means that most of them belong to low-income family. Majority of the parents' highest educational attainment of Grade 8 students are high school graduate. The number of parents (both father and mother) who are high school graduate is 87 or 47.8% and 103 or 56.6% respectively of the entire population. It can also be noted from the table that the number of parents (both father and mother) who entered college is very minimal and there is a glaring number of parents (both father and mother) who are elementary undergraduate to high school graduate. This is the main why most of the parents are self-employed and belong to 4P's with a low family income.

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Performance of the Students Before and After Exposure to Computer-Assisted Instruction

Table 2 presents the mean and standard deviation of the performance of the Grade 8 students in Mathematics before exposure and after exposure to computer-assisted instruction. Their performance was measured according to their section.

Table 2
Performance of the Students Before and After Exposure to Computer-Assisted Instruction

Name of Section	Before Exposure		After Exposure	
	Mean	SD	Mean	SD
A. Bonifacio	25.00	5.518	37.67	5.801
G. Del Pilar	21.89	6.362	29.09	6.566
M. Malvar	20.19	6.089	23.89	6.654
M. Aquino	18.16	5.981	21.04	7.119

By comparing the results in the performance of the students before exposure, table 2 shows that section A. Bonifacio has obtained a mean score of 25.00 with a standard deviation of 5.518. Section G. Del Pilar has obtained a mean score of 21.89 with a standard deviation of 6.362. Section M. Malvar has obtained a mean score of 20.19 with a standard deviation of 6.089. Section M. Aquino has obtained a mean score of 18.16 in their mean score with a standard deviation of 5.981. Table 2 reveals that the highest performance before exposure is A. Bonifacio (1st section) and they also obtained the lowest standard deviation while the lowest performance before exposure is M. Aquino (last section).

The table 2 also shows that the highest increase of the mean score after exposure was A. Bonifacio. They obtained the mean score of 37.67 with a standard deviation of 5.801 and it was the lowest standard deviation among the four sections. It was also followed by section G. Del Pilar with the mean score of 29.09 and a standard deviation of 6.57. Section M. Malvar also obtained a mean score of 23.89 with a standard deviation of 6.65. Lastly, section M. Aquino has obtained the lowest mean score after exposure. Their mean score was 21.94 and a standard deviation of 7.14 which was the highest standard deviation among the four sections.

In summary, the scores of the students before exposure to computer-assisted instruction and activities depend on their section. Moreover, the sectioning of the Grade 8 students was categorized according to their General Average in Grade 7 therefore they belong to homogeneous class. That is the reason why based also on the results, the first section has obtained the highest mean score before and after exposure and they also obtained highest increase in terms of their performance after exposure to computer-assisted instruction. It was followed by the second and third section. And the fourth section has obtained the smallest increase in terms of their performance after exposure to computer-assisted instruction. On the other hand, the standard deviation implies the dispersion of their scores before and after exposure. The first section has obtained the lowest standard deviation, followed by the second and third section, and the fourth section has obtained the highest standard deviation. The result also reveals that the score of each student in the first section was not widely scattered compared to other sections, and the scores of each student in the fourth section was widely scattered among the others.

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Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction

Table 3 presents the performance of the four sections of Grade 8 before and after exposure to computer-assisted instruction in Mathematics was compared using paired-sample t-test.

Table 3
Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction

Name of Section	Compared Categories	Mean	SD	Mean Difference	t-value	Sig.	eta^2
A. Bonifacio	Before Exposure	25.00	5.518	12.674	22.756**	.000	92%
	After Exposure	37.67	5.801				
G. Del Pilar	Before Exposure	21.89	6.362	7.205	17.823**	.000	88.08%
	After Exposure	29.09	6.566				
M. Malvar	Before Exposure	20.19	6.089	3.702	7.040**	.000	51.86%
	After Exposure	23.89	6.654				
M. Aquino	Before Exposure	18.16	5.981	2.889	4.527**	.000	31.78%
	After Exposure	21.04	7.119				

**significant at the 0.01 level (2-tailed)

A paired-sample t-test was conducted to evaluate difference between the performance of the students before and after their exposure to the different computer-assisted instruction.

Table 3 shows that there was a statistically significant increase in the performance of the Grade 8 – A. Bonifacio students before exposure to computer-assisted instruction (Mean=25.00, SD=5.518) and after exposure to computer-assisted instruction (Mean=37.67, SD=5.801, t = 22.756, p<.05). The effect size statistics or eta squared statistic (92%) indicated a very large effect size.

Table 3 also shows that there was a statistically significant increase in the performance of the Grade 8 – G. Del Pilar students before exposure to computer-assisted instruction (Mean=21.89, SD=6.362) and after exposure to computer-assisted instruction (Mean=29.09, SD=6.566, t=17.823, p<.05). The effect size statistics or eta squared statistic (88.08%) also indicated a very large effect size.

Table 3 also shows that there was a statistically significant increase in the performance of the Grade 8 – M. Malvar students before exposure to computer-assisted instruction (Mean=20.19, SD=6.089) and after exposure to computer-assisted instruction (Mean=23.89, SD=6.654, t=3.702, p<.05). The effect size statistics or eta squared statistic (51.86%) also indicated a very large effect size.

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Table 3 also shows that there was a statistically significant increase in the performance of the Grade 8 – M. Aquino students before exposure to computer-assisted instruction (Mean=18.16, SD=5.981) and after exposure to computer-assisted instruction (Mean=21.04, SD=7.119, t=4.527, p<.05) to the different computer-assisted instructions and activities. The effect size statistics or eta squared statistic (31.78%) indicated a very large effect size.

The results again are an evident that after the exposure of the students to computer-assisted instruction, their performance was significantly improved. The findings of this study confirms the study Olusi (2008) who conducted a research on the effects of computer-assisted instruction on the mathematical learning of students of various ages and ability levels and suggested that computer-assisted instruction as a supplement to traditional classroom instruction is more effective than traditional instruction alone. The results also support the claims of Fitzgerald and Koury (2006) that the K-12 classrooms found that students with mild and moderate cognitive learning disabilities learned as well or better with computer-assisted instruction than without it.

Thus, the null hypothesis of this study stating that there is no significant difference between the performance of the students before and after exposure to computer-assisted instruction is rejected.

Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction Across their Profile Variable

Table 4.1
Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction Across their Sex as a Variable

Variable	Compared Categories	No. of Cases	Mean	SD	Mean Diff.	t-value	Sig.	eta^2
Before Exposure	Male	103	19.27	6.317	4.703	5.213**	.000	13.05%
	Female	79	23.97	5.636				
After Exposure	Male	103	24.97	8.661	6.814	5.285**	.000	13.37%
	Female	79	31.78	8.191				

**significant at the 0.01 level (2-tailed)

An independent-samples t-test was conducted to compare scores of male and female students before their exposure to the different computer-assisted instructions and activities. Table 4.1 reveals that there was a significant difference in scores for Male (Mean=19.27, SD=6.317) and Female (Mean=23.97, SD=5.636; t=5.213, p<.05). The magnitude of the differences in the means was moderate (eta squared = 13.05%).

An independent-samples t-test was conducted to compare scores of male and female students after their exposure to the different computer-assisted instructions and activities. Table 4.1 reveals that there was a significant difference in scores for Male (Mean=24.97, SD=8.661) and Female (Mean=31.78, SD=8.191; t=5.285, p<.05). The magnitude of the differences in the means was moderate (eta squared = 13.37%).

The result also implies that females perform better than males because majority of the top performer students in four sections are female. Thus, the null hypothesis of this study stating that there is no significant difference between the performance of the students before and after exposure to computer-assisted instruction across sex as a variable is rejected.

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Table 4.2
Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction Across their Age as a Variable

Variable	Compared Categories	No. of Cases	Mean	SD	Mean Diff.	t-value	Sig.	eta^2
Before Exposure	14 and Below	119	22.27	6.363	2.761	2.797**	.006	4.14%
	15 and above	63	19.51	6.281				
After Exposure	14 and Below	119	29.92	8.849	5.741	4.239**	.000	9.03%
	15 and above	63	24.17	8.389				

**significant at the 0.01 level (2-tailed)

An independent-samples t-test was conducted to compare the scores of the students before their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose age is 14 years old and below, and the students whose age is 15 years and above. Table 4.2 reveals that there was a significant difference in scores for students whose age is 14 years old and below (Mean=22.27, SD=6.363) and students whose age is 15 and above (Mean=19.51, SD=6.281; t=2.797, p<.05). The magnitude of the differences in the means was small (eta squared = 4.14%).

An independent-samples t-test was conducted to compare the scores of the students after their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose age is 14 years old and below, and the students whose age is 15 years and above. Table 4.2 reveals that there was a significant difference in scores for students whose age is 14 years old and below (Mean=29.92, SD=8.849) and students whose age is 15 and above (Mean=24.17, SD=8.389; t=4.239, p<.05). The magnitude of the differences in the means was moderate (eta squared = 9.03%).

The result also implies that the students whose age is 14 years old and below performs better than the students whose age is 15 years old and above since majority of the top performers belong to 14 years old and below and based also on the class records of the researcher, there was a problem on the attendance of the students whose age is 15 years old and above. Thus, the null hypothesis of this study stating that there is no significant difference between the performance of the students before and after exposure to computer-assisted instruction across their age as a variable is rejected.

Table 4.3
Difference Between the Performance of the Students Before and After Exposure to Computer-Assisted Instruction Across their Monthly Family Income as a Variable

Variable	Compared Categories	No. of Cases	Mean	SD	Mean Diff.	t-value	Sig.	eta^2
Before Exposure	Php 10,000 and Below	150	20.94	6.279	2.123	1.698	.091	1.57%
	Php 10,001 and Above	32	23.06	7.057				
After	Php 10,000 and Below	150	26.95	8.956				

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Exposure	Php 10,001 and Above	32	32.50	8.420	5.547	3.213**	.002	5.40%

**significant at the 0.01 level (2-tailed)

An independent-samples t-test was conducted to compare the scores of the students before their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose monthly family income is Php 10,000 and below, and the students whose monthly family income is Php 10,000 and above. Table 4.3 reveals that there was no significant difference in scores for students whose monthly family income is Php 10,000 and below (Mean=20.94, SD=6.279) and students whose monthly family income is Php 10,001 and above (Mean=23.06, SD=7.057; t=1.698, p>.05). The magnitude of the differences in the means was small (eta squared = 1.57%).

An independent-samples t-test was conducted to compare the scores of the students after their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose monthly family income is Php 10,000 and below, and the students whose monthly family income is Php 10,000 and above. Table 4.3 reveals that there was a significant difference in scores for students whose monthly family income is Php 10,000 and below (Mean=26.95, SD=8.956) and students whose monthly family income is Php 10,001 and above (Mean=32.50, SD=8.420; t=5.547, p<.05). The magnitude of the differences in the means was moderate (eta squared = 5.40%).

The result also implies that after exposure to the computer-assisted instruction, the students whose monthly family income is Php 10,001 and above performs better than the students whose monthly family income is Php 10,000 and below because students with a higher monthly family income can avail of computer generated materials than those with a lower monthly family income to supplement their learning needs. The results validate the findings of Olusi (2008) which revealed that computer-assisted instruction as a supplement to traditional classroom instruction is more effective than traditional instruction alone. Thus, the null hypothesis of this study stating that there is no significant difference between the performances of the students before exposure to computer-assisted instruction across their monthly family income as a variable is accepted. And the null hypothesis stating that there is no significant difference between the performances of the students after exposure to computer-assisted instruction across their monthly family income as a variable is rejected.

Table 4.4
Difference Between the Performance of the Students Before and After Exposure to the Different Computer-Assisted Instructions & Activities Across their Father's Highest Educational Attainment

Variable	Compared Categories	No. of Cases	Mean	SD	Mean Diff.	t-value	Sig.	eta^2
Before Exposure	HS Graduate and Below	159	21.14	6.519	1.334	0.926	.356	0.47%
	College Undergrad and above	23	22.48	5.984				
After Exposure	HS Graduate and Below	159	27.19	8.907	5.805	2.921**	.004	4.50%
	College Undergrad and above	23	33.00	8.914				

**significant at the 0.01 level (2-tailed)

An independent-samples t-test was conducted to compare the scores of the students before their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose father's highest educational attainment is high school graduate and below, and the students whose father's highest educational attainment is college undergraduate and above. Table 4.5 reveals that there was no significant difference in scores for students whose father's highest educational attainment is high school graduate and below (Mean=21.14, SD=6.519) and students whose father's highest educational attainment is college undergraduate and above (Mean=22.48, SD=5.984; t=0.926, p>.05). The magnitude of the differences in the means was very small (eta squared = 0.47%).

An independent-samples t-test was conducted to compare the scores of the students after their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose father's highest educational attainment is high school graduate and below, and the students whose father's highest educational attainment is college undergraduate and above. Table 4.5 reveals that there was a significant difference in scores for students whose father's highest educational attainment is high school graduate and below (Mean=27.19, SD=8.907) and students whose father's highest educational attainment is college undergraduate and above (Mean=33.00, SD=8.914; t=2.921, p<.05). The magnitude of the differences in the means was small (eta squared = 4.5%).

The result also implies that after exposure to computer-assisted instruction, the students whose father's highest educational attainment is college undergraduate and above performs better than those students whose father's highest educational attainment is high school graduate and below.

Table 4.5
Difference Between the Performance of the Students Before and After Exposure to the Different Computer-Assisted Instructions & Activities Across their Mother's Highest Educational Attainment

Variable	Compared Categories	No. of Cases	Mean	SD	Mean Diff.	t-value	Sig.	eta^2
Before Exposure	HS Graduate and Below	154	20.84	6.249	-3.091	-2.361*	.019	5.02%
	College Undergrad and above	28	23.93	7.034				
After Exposure	HS Graduate and Below	154	26.90	8.678	-6.711	-3.718**	.000	7.10%
	College Undergrad and above	28	33.61	9.370				

*significant at the 0.05 level (2-tailed)
**significant at the 0.01 level (2-tailed)

An independent-samples t-test was conducted to compare the scores of the students before their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose mother's highest educational attainment is high school

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graduate and below, and the students whose mother's highest educational attainment is college undergraduate and above. Table 4.6 reveals that there was a significant difference in scores for students whose mother's highest educational attainment is high school graduate and below (Mean=20.84, SD=6.249) and students whose mother's highest educational attainment is college undergraduate and above (Mean=23.93, SD=7.034; t=-2.361, p<.05). The magnitude of the differences in the means was moderate (eta squared = 5.02%).

An independent-samples t-test was conducted to compare the scores of the students after their exposure to the different computer-assisted instructions and activities. The grouping variables were the students whose mother's highest educational attainment is high school graduate and below, and the students whose mother's highest educational attainment is college undergraduate and above. Table 4.6 reveals that there was a significant difference in scores for students whose mother's highest educational attainment is high school graduate and below (Mean=26.90, SD=8.678) and students whose mother's highest educational attainment is college undergraduate and above (Mean=33.61, SD=9.370; t=-6.711, p<.05). The magnitude of the differences in the means was moderate (eta squared = 7.10%).

The result also implies that before and after exposure to computer-assisted instruction, the students whose mother's highest educational attainment is college undergraduate and above performs better than those students whose mother's highest educational attainment is high school graduate and below.

CONCLUSIONS AND RECOMMENDATIONS

Based from the significant findings of this study, the following conclusions were drawn by the researcher: 1) Grade 8 students of Tagudin National High School for the school year 2015-2016 are predominantly 13-14 years old, male, they belong to low-income family with a monthly income of Php 10,00 and below, and have fathers and mothers who are high school graduates; 2) The performance of the student before their exposure to computer-assisted instruction ranges from approaching proficiency to proficient; 3) The performance of the student after their exposure to computer-assisted instruction ranges from proficient to advance; 4) There was a significant difference between the performance of the Grade 8 students before and after their exposure to computer-assisted instruction in Mathematics. Moreover, there was a significantly increase in the performance of the students after their exposure to computer-assisted instruction; 5)There was a significant difference between the performance of the students before and after exposure to computer-assisted instruction across their sex as a variable. There was also a significant difference between the performance of the students before and after exposure to computer-assisted instruction across their age as a variable. There was also a significant difference between the performances of the students after exposure to computer-assisted instruction across their monthly family income as a variable. There was also significant difference between the performances of the students after exposure to computer-assisted instruction across their father's highest educational attainment as a variable. There was a significant difference between the performance of the students before and after exposure to computer-assisted instruction across their mother's highest educational attainment as a variable.

RECOMMENDATIONS

In line with the findings and generated conclusions of this study, the following recommendations were formulated by the researcher: 1) Mathematics teachers should make use of appropriate method of instruction for the enhancement of the students' performance in Mathematics; 2) Mathematics teachers should also be aware of the profile and family background of their students because it also affects their academic performance; 3) The use of computer-assisted instruction in Grade 8 Mathematics enhances the performance of

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students better than the traditional method of teaching; 4) Computer-assisted instruction boosts the interest of the students to actively participate in the discussion and improve their academic performance; 5) Students who were taught using advance technology like computer-assisted activities are better performer than the students who were taught in usual classroom situation; 6) Computer-assisted instruction as a supplement to traditional classroom instruction is more effective than traditional instruction alone; 7) School administrators should encourage Mathematics teachers to make use of the advance technology in teaching Mathematics; 8) The Department of Education officials should conduct a follow-up study on the method of instruction in Mathematics; 9) Further studies should be conducted regarding the effects computer-assisted instructions in teaching Mathematics; and 10) Further studies should also be conducted regarding the effectiveness of the different computer-assisted activities like games and other collaborative learning activities in teaching Mathematics.

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