Original Research Article

Attitude And Achievement Of Pupils In Sta. Marcela Central School Towards Math Modules

ABSTRACT

The study was conducted on the intermediate pupils of sta. Marcela central school mainly grades 4,5, and 6 pupils. It determined the respondents' profile in terms of age, sex, educational attainment of parents, occupation of parents. Moreover, it determined the significant difference in pupils' achievement and attitudes when grouped according to profile.

The data collected from the respondents were tabulated, analyzed, and interpreted. Frequency counts, mean, and percentages were used to determine the pupils' profile. The t-test and the f-test were used to test whether or not there are a significant difference in pupils' attitudes and achievements towards math manipulative when grouped according to profile variables. Pupil's attitude towards manipulatives in teaching mathematics was determined using the weighted mean, and the result was described using the four-point likert scale.

The data analysis and interpretation yielded the results that the respondents' attitudes towards math modules have an overall mean of 3.36 which means that it is highly favorable on the effect of modules on pupils' attitude. The findings showed that attitudes of the pupils towards pupils' attitudes according to their profile variables, especially on mothers' educational attainment. This is explained by the computed anova of 3.09801 higher than the critical value of 2.70359 and the probability value of 0.03063, which is significant at a 0.05 level of significance. No difference exists in the pupils' attitudes when grouped according to sex, grade level, fathers' highest educational attainment, and parents' occupation**.**

Keywords: achievement, attitude, Grade 6, learning modalities ,math module, parents' educational attainment, parents' occupation, profile, pandemic.

1. INTRODUCTION

Education is essential in everyone's life. Thus, learning Mathematics is very relevant in man's daily living. Pupils dislike math because they think it's dull. They don't get excited about numbers and formulas how they get excited about history, science, languages, or other subjects that are easier to connect personally. They see math as abstract and irrelevant figures that are difficult to understand. Pupils often misconceive the issue difficult. With this conception, they do not attempt to understand the subject, subsequently causing

them to fail. Some children even pay little attention to Mathematics when they do not appreciate its importance. Mathematics teachers should then be more challenged on finding approaches to teach and promote the subject to increase children's liking and even loving Mathematics.

Fehr and Phillips (2007) suggested that one should teach mathematics to please and satisfy the learners to promote the subject. He must attempt to make it appealing in every sense to capture the interest and attention, even the spirit of the children. Crystal Allen (2007) recommends that using manipulatives gives pupils a better understanding of basic skills and seems to hold their interest and help them enjoy learning.

The use of manipulatives helps pupils to hone their Mathematical thinking skills. According to Stein and Bovalino (2001), "Manipulatives can be an important tool in helping students to think and reason in more meaningful ways. By giving students concrete ways to compare and operate on quantities, such manipulatives as pattern blocks, tiles and cubes can contribute to the development of well-grounded, interconnected understandings of Mathematical ideas."

Supporting the continuation of teaching and learning during the COVID-19 Pandemic, education leaders develop a plan to cater to the children's learning process. One of these alternatives is the use of modules. Modules as learning manipulative are seen beneficial without putting the life of pupils at risk by going to school in the middle of this pandemic. According to Russel (1974), "Module is a short unit of instruction dealing with a conception unit of subject matter." The modular approach is a self-contained package dealing with one specific subject in a convenient form so that the learner can complete it at his own pace independently or in small groups. It is so structured that the learner can identify the objectives, select material, method, and evaluate his accomplishment.

While many teachers and educators believe that the use of modules in Mathematics instruction is essential, some studies say the module's use is non-beneficial or has no result.

This research will assess the Attitudes and Achievements of pupils in Sta. Marcela Central School towards the use of Math modules in teaching. It will be conducted to the intermediate pupils of Sta. Marcela Central School, mainly grades 4,5, and 6.

2. MATERIAL AND METHODS

Respondents and Sampling Procedure

This study is conducted to the intermediate pupils of Sta. Marcela Central School particularly grades 4,5 and 6. They are chosen as respondents of the study as they are officially enrolled based in the LIS since they can now fully manage and use the modules given. Since the enrollment of the school is manageable, total enumeration was used.

Chart 1. Total number of Respondents.

Sta. Marcela Central School	Number of Pupils	Number of Respondents
Grade 4	27	27
Grade 5	39	39
Grade 6	31	31
TOTAL	96	96

Research Instrument

The primary instrument used in gathering the needed data for this study was survey questionnaire. This was adopted from the study of Macadangdang (2015),

This questionnaire consists 2 parts. Part I includes the demographic profile of the respondents in terms of sex, educational attainment and occupation of parents. Part II is a ten - item questionnaire with a four- point Likert scale for the respondents to choose with the following equivalent : 4 – strongly agree, 3 – agree, 2 – disagree, 1 – strongly disagree, to determine the pupils' attitude towards Math modules.

Documentary analysis was used in obtaining the academic performance of the pupils in Mathematics. The performance was taken from their respective subject teachers in Mathematics.

The researcher also conducted informal interviews with the respondents to elicit more reliable answers to the questions.

Collection of Data

In order to gather the needed data from the respondents, permissions were sought first from the Schools' Division Superintendent. After receiving a favorable approval, another request letter was forwarded to the District Supervisor indicating the intent of the researcher to conduct the study. Lastly, a letter was be forwarded also to the school Principal requesting to administer the study.

After all permissions were granted, the researcher personally administered the gathering of data to ensure 100% retrieval and so that she can assist the respondents in completing the questionnaire.

The fourth quarter grade of the respondents in Mathematics was taken from their School Report Card last school year and their first quarter grade in this school year was taken from their math adviser.

Analysis of Data

The data collected form the responde nts was tabulated, analyzed, and interpreted in the light of the problems and objectives of the study by means of the following statistical tools.

Frequency counts, mean and percentages was used to determine the pupils' profile.

Pupil's attitude towards the use mathematics modules was determined using the weighted mean and the result was described using the four-point Likert scale as follows:

Chart 2: Pupil's attitude towards the use mathematics modules

Point	Range	Descriptive Value	Interpretation
4	3.26 -4.00	Strongly Agree	Highly Favorable

3	2.51-3.25	Agree	Favorable
2	1.76-2.50	Disagree	Unfavorable
1	1.00-1.75	Strongly Disagree	Highly Unfavorable

The t-test and the F-test were used to test whether or not there is significant difference in the attitudes and achievements of pupils towards math manipulative when grouped according to profile variables.

Documentary analysis was used to determine the achievement of pupils in Mathematics. The result was described using the following scale based from the School Form 10.

Chart 3: Achievement of pupils in Mathematics

Grade	Descriptive Value
90 and Above	Outstanding
85 – 89	Very Satisfactory
80 – 84	Satisfactory
75– 79	Unsatisfactory
Below 74	Fair

3. RESULTS AND DISCUSSION

DISCUSSION OF FINDINGS

This chapter presents the consolidated results, findings, and interpretations of the data gathered from the respondents' trough the retrieved questionnaire regarding the attitudes and achievements of intermediate pupils of Sta. Marcela Central School towards Math Modules. The data were analyzed and tested using the appropriate statistical tools.

Grade Level

Figure 1 shows the grade level distribution of the respondents. The graph revealed that out of 96 respondents, 27 or 28% are Grade 4, 38 or 40 % are Grade 5, and 31 or 32% of them are Grade 6. They are chosen as respondents of the study since they can now fully manage and use the modules given. Total enumeration was used since the officially enrolled pupils based on the LIS is manageable. The pupils' attitudes increases every passing day in educational system (Gerçek & di÷. 2006). To achieve the expected student success, it is required to know students' attitudes (Hançer & dig. 2007), because one of the objectives of elementary mathematics education is to get students improve affirmative attitudes towards mathematics, Determining how much students reached the educational objectives will be beneficial for assessing of the current education and, if there are needed, doing some changes on it. Determining student attitudes which can be affected

by different variables will be beneficial for remediation of students' disregard, biases and learning difficulties about mathematics. A lot of studies has been performed which have aimed at specifying of attitudes both primary and secondary school levels (Aúkar, 1986; Baykul, 1990; Altun, 1995; Güler, 1997; Peker & Mirasyedio÷lu, 2003; Yılmaz, 2006). However, there have not attained enough studies determining and comparing how elementary school students' attitudes towards mathematics.

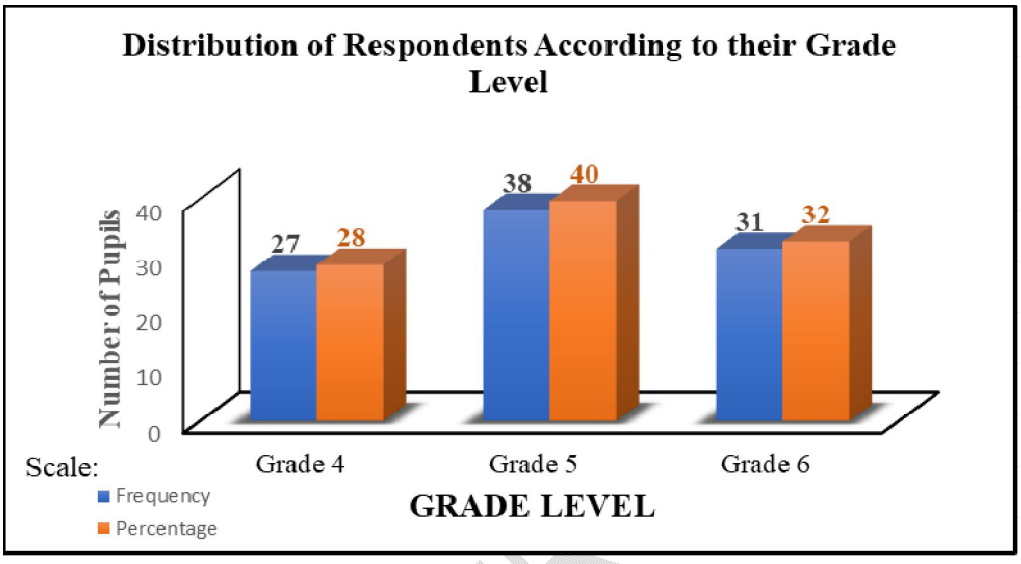

Figure 1. Distribution of the respondents according to Grade Level

Sex

Figure 2 shows the sex distribution of the respondents. The graph revealed that out of 96 respondents, 51 respondents or 53% are males and 45 or 47% are females. The data revealed that the number of male respondents is 6 or 4% more than the number of female respondents.

Hyde, Fennema, and Lamon 2000 explained math achievement in relation to sex variable through a meta-analysis which reveals that males tend to do better on mathematics test that involve problem solving. In a study made by (Campbell, 2005; Gray, 2006; Mullis, martin, Fieros, Goldberg, & Stemler, 2000), stated that as pupils reach higher grades, gender differences favor increase in math achievement by males.

Another study shows that females tend to earn better grades than males in mathematics (Kimbal 2009). Females tend to do better in computations, and there is no significant sex differences in understanding math concepts.

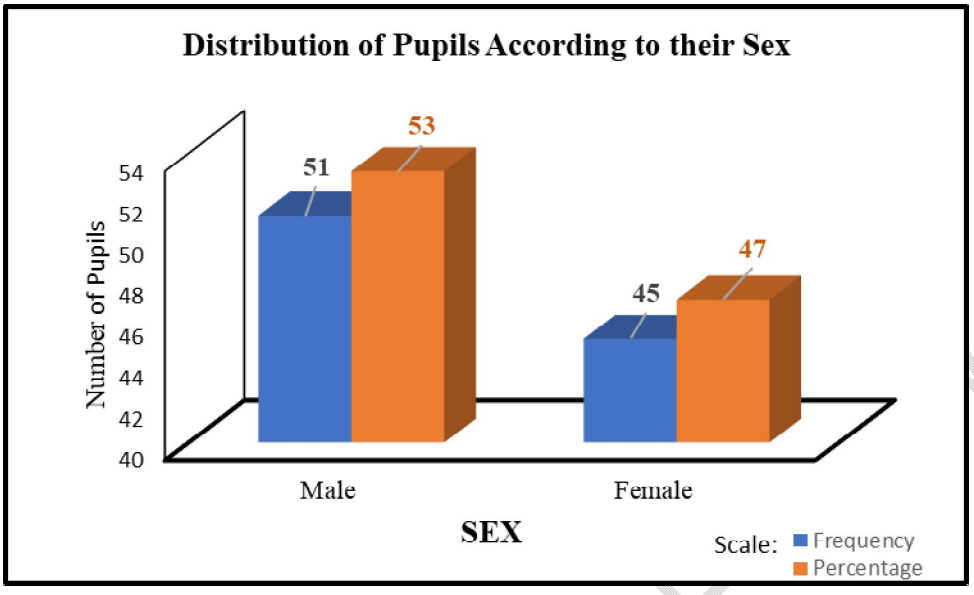

Figure 2. Distribution of the respondents according to sex

Fathers' Educational Attainment

As to fathers' educational attainment, 5 or 5.21% have reached Elementary Level,9 or 9.38% are Elementary Graduate, 53 or 52.21% are High School Graduate, 18 or 18.75% have reached College Level, 9 or 9.38% are College Graduate, 1 or 1.04% has Master's Degree, and 1 or 1.04% has Ph.D Units. This result implied that most of the respondents' father are not professionals, but they have acquired the basic education that could classify them as literate citizens. For instance, pupils whose parents had less than high school education do not have enough capacity to teach math (Campbell, Hombo, & Mazzeo, 2000). Research has shown that parents' educational level not only impact pupil attitudes toward learning but also impact their math achievement scores.

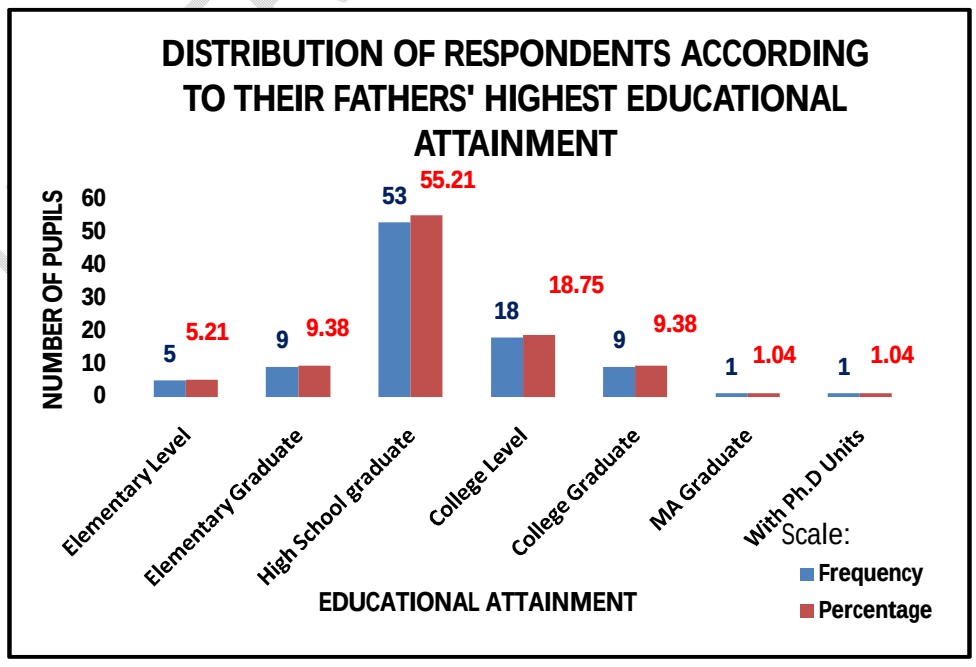

Figure 3. Distribution of the respondents according to fathers' educational attainment.

Mothers' Educational Attainment

As to mothers' educational attainment, 2 or 2.08% have reached Elementary Level, 7 or 7.29% are Elementary Graduate, 6 or 6.25% have reached High School Level, 42 or 43.75% are High School Graduate, 15 or 15.63% have reached College Level, 21 or 21.88% are College Graduate, 1 or 1.04% is has Master's Degree, and 2 or 2.08% has Ph.D Units. This result implied that most of the respondents' mother are not professionals, but they have acquired the basic education that could classify them as literate citizens. Studies indicated that pupil achievement is affected with educational attainment of parents (Coleman, 2006). Parents serve as a role model and a guide encouraging their children to pursue high educational goals and desire by establishing the educational resources on hand in the home and holding particular attitude and values towards in their children's learning.

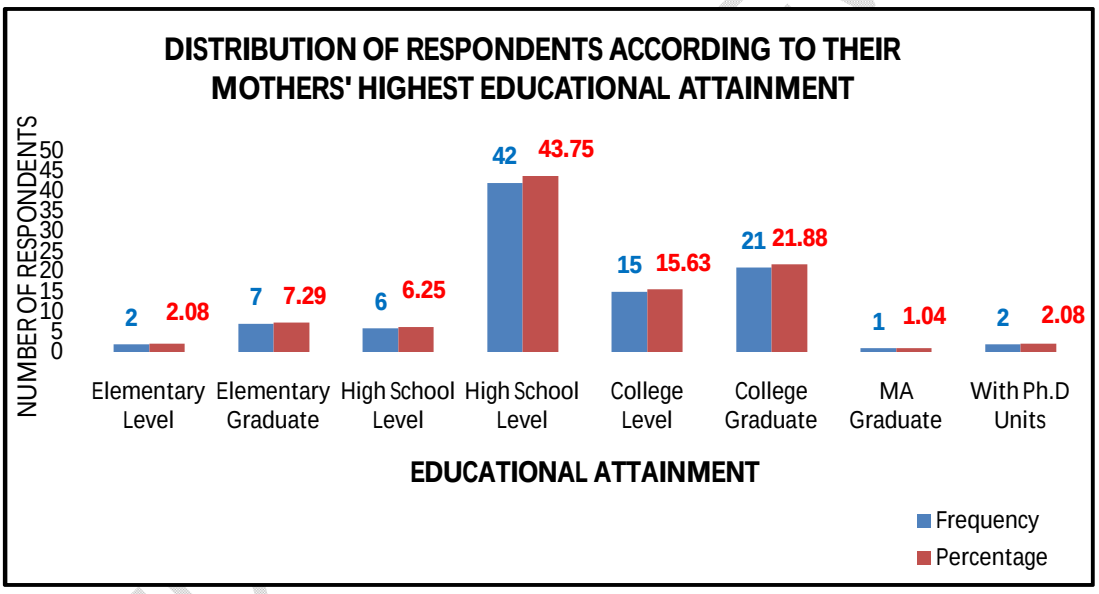

Figure 4. Distribution of the respondents according to mothers' educational attainment.

Fathers' Occupation

In terms of fathers' occupation, it could be seen from the graph that 70 or 72.92% are Farmers, 17 or 17.71% are Carpenters, 2 or 2.08% are Business Men/Vendors, 3 or 3.13% are OFWs, 2 or 2.08% are Office workers, 1 or 1.04% is employed as Police Man, and 1 or 1.04% is employed as Engineer. This implies that majority of the respondents' father do not receive regular salaries because only few of them are employed. It also supports the latter findings that majority of the fathers of the respondents only acquired the basic education.

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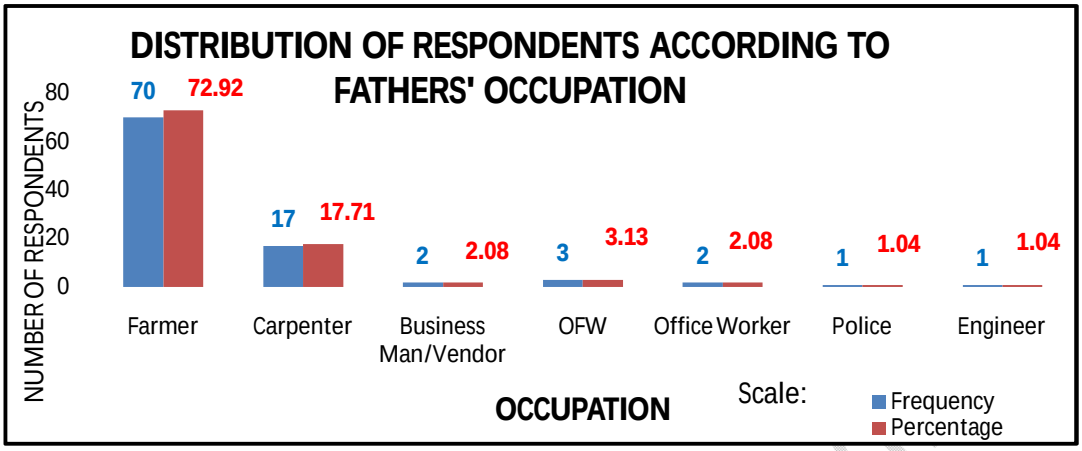

Figure 5. Distribution of the respondents according to fathers' occupation.

Mothers' Occupation

In terms of mothers' occupation, it could be seen from the graph that 43 or 44.79% are Farmers, 29 or 30.21% are plain House Wives, 6 or 6.25% are Business Women/Vendors, 6 or 6.25% are OFWs, 6 or 6.25% are Office workers, 5 or 5.21% is employed as Teachers, and 1 or 1.04% is employed as Nurse. This implies that majority of the respondents' mother do not receive regular salaries because only few of them are employed. It also supports the latter findings that majority of the mothers of the respondents only acquired the basic education.

Most of the respondents' mother are farmers and they only go to field during planting season only, therefore it could be one of the contributing factor to pupils achievement in school for they have more time assisting their child at home.

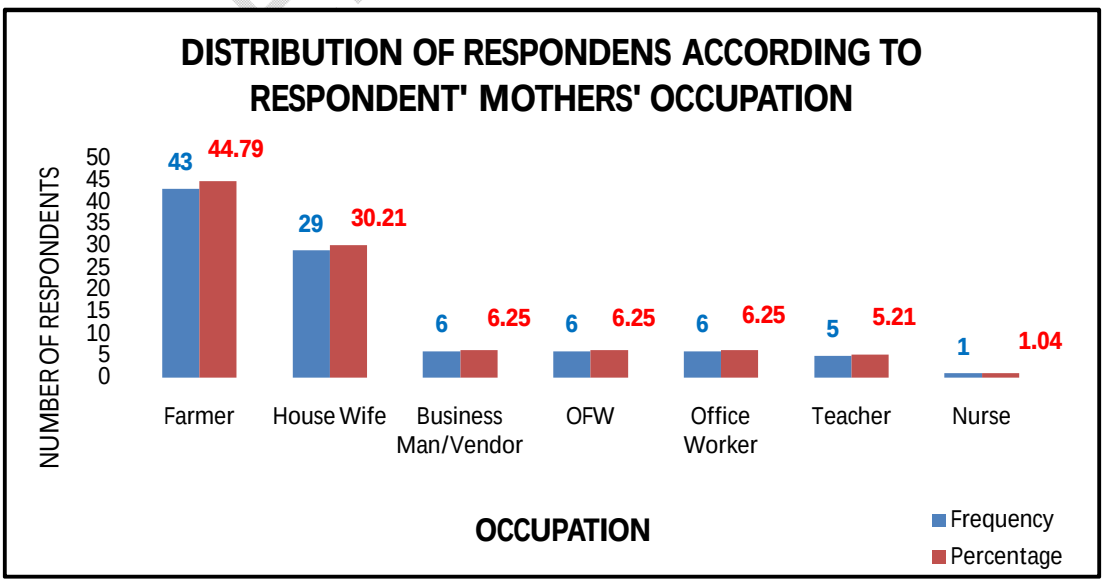

Figure 6. Distribution of the respondents according to mothers' occupation.

Attitude of Respondents Towards Math Modules.

Table 1 presents the respondent's attitudes towards Math Modules. The table revealed that out of ten indicators, nine indicators have descriptive value of "Strongly Agree" with a verbal interpretation of "Highly affects Math Achievement". These indicators are "I can easily understand the lessons in Math Modules", "I understand the discussion presented in the Math Modules", "It is easy for me personally to stay focus on the lesson presented on the module", "I enjoy answering the Math Modules", "I look forward in answering more modules", "I am happier in math class than in any other class using the module", "I feel bad missing the lecture presentation but the modules given can help me understand the lesson", "I am very much interested to answer my math modules ", and "I prefer lessons with Math Modules".

One indicator has a descriptive value of "Agree". This indicator is "I am always under a terrible strain answering my math modules".

The total weighted mean of the ten indicators is 3.36. This means that the respondents believe or "Strongly Agree" that Math Modules affect their attitude towards Math and also improved their Math achievement.

The above findings conform with Piaget (1952), in his hypothesis that children are not mentally mature enough to grasp abstract Mathematical concepts if their teachers only presented the concepts in writing using words, numbers, and symbols. According to him, children need several experiences with concrete materials and drawings in order to learn abstract objects. He believes that as children mature to their adolescence their need for concrete experiences diminishes but never ceases.

The above findings were also supported by Diene's Constructively Principle (1971), stating that teachers should always provide their students with opportunities to work concrete forms of concepts before they expect their students to analyze the abstract forms of the concepts.

Rusic and O'Connell (2001), further cited that using manipulatives like modules are especially useful in teaching low achievers, and with students with learning disabilities. Study of Heuser (2000) also stated that when students work with manipulatives and then are given a chance to reflect on their experiences, not only is Mathematical learning enhanced, Math anxiety is greatly reduced.

Table 1: Attitude of Respondents towards Math Modules.

Indicators	Weighted Mean	Descriptive Value
1. I can easily understand the lessons in Math Modules	3.47	Strongly Agree
2. I understand the discussion presented in the Math Modules	3.53	Strongly Agree
3. It is easy for me personally to stay focus on the lesson presented on the module	3.41	Strongly Agree
4. I enjoy answering the Math Modules	3.64	Strongly Agree

5. I look forward in answering more modules.	3.6	Strongly Agree
6. I am happier in math class than in any other class using the module.	3.38	Strongly Agree
7. I feel bad missing the lecture presentation but the modules given can help me understand the lesson.	3.4	Strongly Agree
8. I am very much interested to answer my math modules .	3.82	Strongly Agree
9. I prefer lessons with Math Modules	3.4	Strongly Agree
10. I am always under a terrible strain answering my math modules.	1.97	Agree
TOTAL MEAN	**3.36**	STRONGLY

Academic Performance of Pupil's Using Math Modules

Table 2 shows the achievement of the respondents in Mathematics using Math manipulatives. In their Fourth quarter grade last school year, it is found out that 9 or 9.14 percent of the pupils obtained a grade ranging from 90 and above with a descriptive value of "outstanding", 13 or 13.54 percent of the pupils also obtained a grade ranging from 85-89 percent describe as "Very Satisfactory", 45 or 46.88 percent obtained a grade ranging from 80-84 percent with a descriptive value of Satisfactory, and 23 or 30.21 percent obtained a grade ranging from 75-79 percent with a descriptive value of 'Fairly Satisfactory". The average performance of the respondents in the fourth quarter last school year is 81.96 which is described as Satisfactory.

In their first quarter grade in this school year, it is found out that 14 or 14.58 percent of the pupils obtained a grade ranging from 90 and above with a descriptive value of "outstanding", 25 or 26.04 percent of the pupils also obtained a grade ranging from 85-89 percent describe as "Very Satisfactory", 43 or 44.79 percent obtained a grade ranging from 80-84 percent with a descriptive value of Satisfactory, and 14 or 14.58 percent obtained a grade ranging from 75-79 percent with a descriptive value of 'Fairly Satisfactory". The average performance of the respondents in the fourth quarter last school year is 83.88 which is also described as Satisfactory.

This means that the pupils performed better in Mathematics when using Math Modules because the mean grade of the pupils in Mathematics is in Satisfactory Level and it increased with 1.92 percent from their fourth quarter grade last school year.

Interest and attitude in the subject area are the special predictors for students' participation and success in the subject. (George M. & Geoge R, 2012). Math Modules gives trill to the learners because of exciting activities like solving a puzzle, answering a simulation, and trivia. According to the pupils' feedback that we acquired during home visitation, the pupils are enjoying their modules and they are every excited for their new module to come. Most of the pupils chose to answer their math module first because according to them it is more fun to answer and study than the other subjects which could only require reading and memorizing.

Learning with math module is student-centered that allows reflective learning by giving pupils the opportunity to reflect on the learning process. Using a teaching module to teach Mathematics increase active learning and improve critical thinking, as well as problem

solving skills. Math modules develop ability to relate new ideas to previous knowledge; provide explicit explanations & a clear knowledge base to students; structure in a reasonable student workload; provide opportunities for students to pursue topics in depth through self-learning. With the presence of math modules, the pupils became aware of their learning.

Table 2. Distribution on the Academic Performance of Pupils using Math Modules

GRADING SCALE	DESCRIPTIVE VALUE	**Fourth Quarter Grade S.Y. 2019-2020**		**First Quarter Grade S.Y. 2020-2021**	
		Number of Pupils	**Percentage**	**Number of Pupils**	**Percentage**
90-100	OUTSTANDING	9	**9.38**	14	**14.58**
85-89	VERY SATISFACTORY	13	**13.54**	25	**26.04**
80-84	SATISFACTORY	45	**46.88**	43	**44.79**
75-79	FAIRLY SATISFACTORY	29	**30.21**	14	**14.58**
BELOW 75	DID NOT MEET EXPECTATION	0	0	0	0
		AVERAGE PERFORMANCE = 81.96 (SATISFACTORY)		**AVERAGE PERFORMANCE = 83.88 (SATISFACTORY)**	

Relationship Between Attitude of Pupils Towards Math Modules and Math Achievement

Table 3 shows the relationship between attitude of pupils towards math modules and math achievement. Performance 2019-2020 Vs Attitude Towards Math Modules has an R-Value of 0.40100 and a P-Value 0.000050 that shows significant relationship. Performance 2020-2021 Vs Attitude Towards Math Modules has an R-Value of 0.47400 and a P-Value 0.000001 that shows significant relationship. The table shows that the 2-tailed correlation is significant at 0.01 level.

The good performance of the pupils can also be attributed to the positive attitude of the pupils towards the use of Math Modules as revealed in Table 3 shows that Math Modules gave them positive attitude towards learning as supported by the study of (Moch 2001).

The good performance of the pupils can be attributed to the use of modules in teaching the subject as supported by Sebeste and Martin (2004), stating that with long term use of modules, pupils make gains in verbalizing Mathematical concept, discussing Mathematical ideas and concept, relating real-world, situations to Mathematical symbolism, working collaboratively, thinking divergently to find a variety of ways to solve problems, expressing problems and solutions using a variety of Mathematical symbols, making presentations, taking ownership of their learning experiences, and gaining confidence in their abilities to

find solutions to Mathematical problems using methods that they come up with themselves without relying on directions from the teacher.

Table 3. Relationship Between Attitude of Pupils Towards Math Modules and Math Achievement

	R-VALUE	P-VALUE	REMARKS
Performance 2019-2020 Vs Attitude Towards Math Modules	0.40100	0.000050	SIGNIFICANT
Performance First Quarter 2020-2021 Vs Attitude Towards Math Modules	0.47400	0.000001	SIGNIFICANT
Correlation is significant at the 0.01 level (2-tailed).			

Difference in the Attitude of Pupils on Math Modules When Grouped According to Profile Variables

Table 4 presents the difference on the Attitude of pupils towards Math Modules when grouped according to profile variables. The research hypothesis "There is no significant difference on the attitudes of the respondents when grouped according to profile variables" is rejected. This shows that attitudes of the pupils towards Math Modules differ when grouped according to their profile variables especially on mothers' educational attainment. This is explained by the computed ANOVA of 3.09801 higher than the critical value of 2.70359 and the probability value of 0.03063 which is significant at 0.05 level of significance. No difference exist on the attitudes of the pupils when grouped according to sex, grade level, fathers' highest Educational Attainment and parents' occupation.

Based from the Mean values for the different levels under Mothers' Highest educational Attainment, pupils whose parents finished graduate studies have higher mean than those with the lower bracket. This implies that the higher the educational attainment of the parents of the pupils the more positive is their attitude towards Math modules. The findings of this study is the same with the findings of the study of Kant and Lenka (2012) in the Effect of Parental Participation on Academic Attainment of Secondary School Students, there is a significant positive relationship between parental involvement and academic attainment in Mathematics. Vellymalay et.al (2010) investigated the relationship between parents' education level and parental involvement in their children's education. Findings of the study suggest that there are is a significant differences between parents' education level and most of the parents' involvement strategies in their children's education. Parenting style has a major influence on the development of the child. Epstein (2005) Parent involvement improves student emotional well-being.

Table 4. Difference in the Attitude of Pupils on Math Modules When Grouped According to Profile Variables

SEX	MEAN	t-COMPUTED	t-CRITICAL	P-VALUE	REMARKS
MALE	3.31	1.83164	1.98552	0.07017	NS
FEMALE	3.42				
GRADE LEVEL	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS

4	3.38	1.327	3.09434	0.27	NS
5	3.41				
6	3.28				
FATHERS' HIGHEST EDUCATIONAL ATTAINMENT	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Elementary Level	3.30	1.93974	2.70359	0.12865	NS
Elementary Graduate	3,.32				
High School graduate	3.49				
College Level	3.50				
College Graduate	3.36				
MA Graduate	3.34				
With Ph.D Units	3.20				
MOTHERS' HIGHEST EDUCATIONAL ATTAINMENT	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Elementary Level	**3.26**	**3.09801**	**2.70359**	**0.03063**	**SIGNIFICANT**
Elementary Graduate	**3.29**				
High School Level	**3.47**				
High School Level	**3.50**				
College Level	**3.12**				
College Graduate	**3.36**				
MA Graduate	**3.27**				
With Ph.D Units	**3.43**				
FATHERS' OCCUPATION	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Farmer	3.34	0.98207	2.70359	0.40481	NS
Carpenter	3.53				
Business Man/Vendor	3.4				
OFW	3.43				
Office Worker	3.49				
Police	3.38				

Engineer	3.47				
MOTHERS' OCCUPATION	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Farmer	3.29	2.37781	2.70359	0.07491	NS
House Wife	3.46				
Business Man/Vendor	3.46				
OFW	3.6				
Office Worker	3.56				
Teacher	3.39				
Nurse	3.2				

Difference in the Pupils' Math Performance for 2019-2020 When Grouped According to Profile Variables

Table 5 presents the difference in the performance of pupils on math modules when grouped according to profile Variables. The table revealed that there is significant difference in the performance of the pupils when grouped according to Sex with a P-Value of 0.000323 which is within the 0.01 level of significance. There is a significant difference in the performance of the pupils when grouped according to their Fathers' Educational Attainment, with a P-Value of 0.00117 which is significant at 0.01 level of significance. A significant difference in the performance of the pupils exist when grouped according to Mothers' Educational Attainment with a Probability Value of 0.00028 which is within the 0.01 level of significance.

A significant difference also exists when Mathematics Performance is grouped according to Parents' Occupation, with a Probability value of 0.03801 significant at 0.05 level of significance for fathers' and a Probability Value of 0.00309 for mothers which is significant at 0.01 level of significance.

This shows that difference exist on the performance of pupils for 2019-2020 when grouped according to sex, parents' highest educational attainment and parents' occupation. Since the average performance of female is higher than those of the males, it implies that females performed better than males. This finding conforms with the findings of (Ajai & Imoko 2015) that favor of the female students. The study showed that the female students retained knowledge just a little more than male students.

Difference also exists on the performance of the pupils when grouped according to Parents' Highest educational attainment. The mean performance of pupils whose parents finished a degree and undergone graduate studies are better than those with parents who are undergraduates. This shows that pupils whose parents finished a degree performed better than those parents did not finish a degree. It implies that the higher the educational attainment of the parents the better is their child's academic performance in Mathematics.

Lockheed, Fuller and Nyirongo (1989) show that students belonging to upper socio-economic status groups showed better academic achievement than students belonging to lower socio-economic status groups. With reference to achievement in Mathematics, Howley (1989) and House (2002) stated that students learn better if they are from above average or average income family, with well-educated parents who participate in the

school's education process and encourage their children to learn. They established that the socio-economic status of students affected their achievement positively.

There is no significant difference in the performance of the pupils when group according to Grade Level with a P-Value of 0.09301 which is neither significant at 0.01 and 0.05 level of significance.

Table 5. Difference in the Pupils' Math Performance for 2019-2020 When Grouped According to Profile Variables

SEX	MEAN	t-COMPUTED	t-CRITICAL	P-VALUE	REMARKS
MALE	**80.69**	**3.02227**	**1.98552**	**0.000323**	**SIGNIFICANT**
FEMALE	**83.4**				
GRADE LEVEL	**MEAN**	**F-COMPUTED**	**F-CRITICAL**	**P-VALUE**	**REMARKS**
4	83.56	2.43679	3.09434	0.09301	NS
5	81.53				
6	81.1				
FATHERS' HIGHEST EDUCATIONAL ATTAINMENT	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Elementary Level	**79.81**	**5.7676**	**2.70359**	**0.00117**	**SIGNIFICANT**
Elementary Graduate	**81.78**				
High School graduate	**84.83**				
College Level	**82.00**				
College Graduate	**83.67**				
MA Graduate	**82.98**				
With Ph.D Units	**83.43**				
MOTHERS' HIGHEST EDUCATIONAL ATTAINMENT	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Elementary Level	**79.77**	**6.97438**	**2.70359**	**0.00028**	**SIGNIFICANT**
Elementary Graduate	**79.82**				
High School Level	**80.52**				
High School Level	**84.30**				
College Level	**84.50**				
College Graduate	**82.67**				
MA Graduate	**81.78**				
With Ph.D Units	**83.19**				

FATHERS' OCCUPATION	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Farmer	**81.53**	**2.92431**	**2.70359**	**0.03801**	**SIGNIFICANT**
Carpenter	**85.86**				
Business Man/Vendor	**85.25**				
OFW	**80.5**				
Office Worker	**82.36**				
Police	**84.47**				
Engineer	**83.79**				
MOTHERS' OCCUPATION	MEAN	F-COMPUTED	F-CRITICAL	P-VALUE	REMARKS
Farmer	**80.92**	**4.96179**	**2.27359**	**0.00309**	**SIGNIFICANT**
House Wife	**82.48**				
Business Man/Vendor	**85.73**				
OFW	**89**				
Office Worker	**84.34**				
Teacher	**85.12**				
Nurse	**83.57**				

Difference in the Pupils' Math Performance for First Quarter 2020-2021 When Grouped According to Profile Variable

Table 6 presents the difference in the pupils' math performance for first quarter 2020-2021 when grouped according to profile Variable. There is significant difference in the performance of the pupils when grouped according to Sex with a Probability Value of 0.01063 which is within the 0.05 level of significance. Fathers' Educational Attainment proposes a difference in the performance of the pupils with a Probability Value of 0.00274 which is within the 0.01 level of significance. A significant difference also exists on the Performance of the pupils when grouped according to Mothers' Educational Attainment with a Probability Value of 0.004572 which is within the 0.01 level of significance. Performance of the pupils also differ when grouped by Mothers' Occupation with a Probability Value of 0.01053 which is within the 0.05 level of significance. With these findings, the research hypothesis "There is no significant difference on the Math Performance for first quarter 2020-2021 when grouped according to profile variables" is rejected. This shows that a difference exists when the performance of the pupils for the first quarter 2020-2021 are grouped as to their profile specifically on sex, parents' highest educational attainment and mother's occupation. Male performed better than females. Pupils whose parents are degree holders performed better. Pupils whose mothers have stable jobs also performed better than their counterparts.

Abubakar and Oguguo (2011) found in their study that age and gender where significant predictors of the students' achievement. In the study of (Capuno et al.) another variable that is considered in this present study is the parents' highest educational attainment. Parents can guide their children at home to whatever school tasks are assigned to their children.

Given enough knowledge of the parents on the tasks of their children will help them guide their children in accomplishing such tasks. Thus, their educational attainment is relevant to this matter.

There is no significant difference in the performance of the pupils when group according to Grade Level with a P-Value of 0.47992 and Fathers' Occupation with a P-Value of 0.30446 which is greater than the level of significance.

Table 6. Difference in the Pupils' Math Performance for First Quarter 2020-2021 When Grouped According to Profile Variables

Sex	**Mean**	**T-Computed**	**T-Critical**	**P-Value**	**Remarks**
Male	**85.07**	**2.60658**	**1.98552**	**0.01063**	**Significant**
Female	**82.82**				
Grade Level	Mean	F-Computed	F-Critical	P-Value	Remarks
4	84.37	0.73997	3.09434	0.47992	NS
5	83.21				
6	83.26				
Fathers' Highest Educational Attainment	**Mean**	**F-Computed**	**F-Critical**	**P-Value**	**Remarks**
Elementary Level	**82.00**	**5.06048**	**2.70359**	**0.00274**	**Significant**
Elementary Graduate	**83.67**				
High School Graduate	**86.48**				
College Level	**84.00**				
College Graduate	**86.24**				
Ma Graduate	**84.56**				
With Ph.D Units	**85.87**				
Mothers' Highest Educational Attainment	**Mean**	**F-Computed**	**F-Critical**	**P-Value**	**Remarks**
Elementary Level	**81.54**	**4.63945**	**2.70359**	**0.004572**	**Significant**
Elementary Graduate	**82.98**				
High School Level	**85.73**				
High School Level	**84.50**				
College Level	**83.46**				
College Graduate	**86.20**				
Ma Graduate	**84.94**				
With Ph.D Units	**83.78**				
Fathers' Occupation	Mean	F-Computed	F-Critical	P-Value	Remarks

Farmer	83.54	1.22698	2.70359	0.30446	NS
Carpenter	86				
Business Man/Vendor	86.5				
OFW	86.08				
Office Worker	83.87				
Police	85.35				
Engineer	83.56				
Mothers' Occupation	**Mean**	**F-Computed**	**F-Critical**	**P-Value**	**Remarks**
Farmer	**82.93**	**3.95968**	**2.70359**	**0.01053**	**SIGNIFICANT**
House Wife	**84.44**				
Business Man/Vendor	**87.36**				
OFW	**87**				
Office Worker	**86.48**				
Teacher	**83.09**				
Nurse	**82.38**				

SUMMARY, CONCLUSION, AND RECOMMENDATION

SUMMARY

The study focused on the achievement level of the pupils and their attitude towards Math Modules.

Specifically, it determined the profile of the respondents in terms of age, sex, educational attainment of parents, occupation of parents. Moreover, it determined the significant difference in the achievement and attitudes of pupils when grouped according to profile.

A questionnaire checklist was the main instrument in gathering data needed in pupils' attitudes towards Math manipulatives. The achievements of pupils in Mathematics were determined from their quarter grade in SY 2019-2020 and first quarter grade in SY 2020-2021 in their School Report Card.

The data collected from the respondents were tabulated, analyzed, and interpreted. Frequent counts, mean, and percentages were used to determine the pupils' profile. Pupil's attitude towards manipulatives in teaching Mathematics was determined using the weighted mean, and the result was described using the four-point Likert scale.

The analysis and interpretation of the data yielded the following results:

1. Profile of the Respondents revealed that most of them are males with 53% and only 47% are females. Most of them are Grade 5 pupils with 40% while 32% are Grade 6 and 28% are Grade 4 pupils. The majority of the fathers respondents are High School Graduate level with 52.21%, and the majority mothers of the respondents are also High School Graduate level with 43.75%. Most of them are working as farmers with 72.92% and 44.79%, respectively.

2. The respondents' attitudes towards Math modules have an overall mean of 3.36 which means that it is extremely favorable on the effect of modules on pupils' attitude.

3. The distribution on the academic performance of pupils using Math Modules in the fourth quarter of SY 2019-2020 is 81.96 with a descriptive value of satisfactory and increased with1.96 in the first quarter grade in SY 2020-2021, which is 83.88 with a descriptive value of satisfactory.

4. When pupils are grouped according to profile variables, there is no significant difference in pupils' attitudes in terms of sex, grade level, father's educational attainment, parents' occupation. However, there is a significant difference in pupils' attitudes regarding the mother's educational attainment variable with a P-Value of 0.03063, which is within the 0.01-0.05 Level of Significance.

5. When pupils are grouped according to profile variables, there is a significant difference in the performance of pupils in terms of sex, father's educational attainment, mother's educational attainment, and mother's occupation. There is no significant difference in the performance of pupils in terms of the father's occupation variable with a P-Value of 0.30446, which is greater than the 0.01-0.05 level of significance.

CONCLUSION

Based on the foregoing findings, the following conclusions were arrived at:

1. Sex, fathers' educational attainment, mothers' educational attainment, and fathers' occupation have a significant difference in pupils' achievement towards Math manipulatives.

2. The study is male-dominated. The majority of the respondents' parents are High School graduates, and only a few reached the College level. Most of them are farmers since it is the primary source of living in our locality.

3. Mother's has a significant difference in the attitude of pupils toward math modules. Father's occupation has no significant difference on the achievement of pupils towards math modules

4. As a result of teaching Mathematics using modules, there is a positive effect on the pupils' attitude. The pupils showed more interest and enjoyment based on the parents' and pupils' feedbacks during home visitation. The pupils were visibly more active and developed more self-confidence in their Math skills.

5. Use of Modules in teaching Mathematics has a positive effect on pupils' academic achievement.

RECOMMENDATION

Based on the findings and conclusions, the researcher offered the following recommendations:

1. The performance of pupils towards the use of Math Modules has a significant effect according to the profile of respondents. To further improve their learning. The teacher can give the learner's guide and parent to be more directed and aware of what competency will be developed after answering the Math Module.

2. Additional research with a better balance of respondents, considering the profile of pupils in selecting, might provide more conclusive evidence of the use of Math Modules.

3. The pupils' attitude towards the use of Math Modules when group according to sex has a significant difference. Teachers should then be careful and flexible in using modules for boys and girls.

4. Math Modules can be used for all grade levels. Teachers can use modules as an effective instructional tool to improve pupils' attitudes towards learning Mathematics.

5. Teachers must be careful in using Math Modules because they can be beneficial to young children, but they must be used correctly.

6. The pupils' attitude towards the use of Math Modules when group according to mother's educational attainment has a significant difference. Teachers should always communicate with the mothers of these pupils to monitor their attitude towards Math Modules.

7. Administrators can encourage and recommend elementary teachers to make modules for Math instruction for it improves the academic achievement of pupils in Mathematics.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

APPENDICES

Appendix A

LETTER-REQUEST TO THE PUBLIC SCHOOLS DISTRICT SUPERVISOR

Republic of the Philippines
CAGAYAN STATE UNIVERSITY
Sanchez Mira Campus
Sanchez Mira, Cagayan

December 1, 2020

xxxxx
Public Schools District Supervisor
Division of Apayao
Sta Marcela, Apayao

Sir:

The undersigned is currently conducting a study titled **"Attitude and Achievement of Pupils in Sta. Marcela Central School Towards Math Manipulatives"**, in partial fulfillment of the requirements for the degree Master of Arts in Education Major in Educational Management.

In this regard, may I request permission from your good office for me to administer my questionnaires for the said study to the pupils at the intermediate grade of Sta. Marcela Central School of Sta. Marcela District. Rest assured that the data which I will gather will be kept with utmost care and confidentiality and that it will be used only for the purpose of this study.

I anticipate my sincerest thanks for your approval to this request. God bless and more power!

Very truly yours,

XXXX
Researcher

Noted:

XXXX
Adviser

Approved:

XXXX
Public Schools District Supervisor

Appendix B

LETTER-REQUEST TO THE PUBLIC SCHOOLS DIVISION SUPERVISOR

Republic of the Philippines
CAGAYAN STATE UNIVERSITY
Sanchez Mira Campus
Sanchez Mira, Cagayan

December 2, 2020

XXXX
Schools Division Superintendent
Division of Apayao
Capagaypayan, Luna, Apayao

Through Channels

Madam:

The undersigned is currently conducting a study titled **"Attitude and Achievement of Pupils in Sta. Marcela Central School Towards Math Manipulatives"**, in partial fulfillment of the requirements for the degree Master of Arts in Education Major in Educational Management.

In this regard, may I request permission from your good office for me to administer my questionnaires for the said study to the pupils at the intermediate grade of Sta. Marcela Central School of Sta. Marcela District. Rest assured that the data which I will gather will be kept with utmost care and confidentiality and that it will be used only for the purpose of this study.

I anticipate my sincerest thanks for your approval to this request. God bless and more power!

Very truly yours,

XXXX
Researcher

Noted:

XXXX
Adviser

Noted:

XXXX
Public Schools District Supervisor

Approved:

XXXX
Public Schools Division Supervisor

Appendix C

LETTER-REQUEST TO THE PUBLIC SCHOOLS PRINCIPAL

Republic of the Philippines
CAGAYAN STATE UNIVERSITY
Sanchez Mira Campus
Sanchez Mira, Cagayan

December 3, 2020

XXXX
School Principal II
Sta. Marcela Central School
Marcela, Sta Marcela, Apayao

Ma'am:

The undersigned is currently conducting a study titled **"Attitude and Achievement of Pupils in Sta. Marcela Central School Towards Math Manipulatives"**, in partial fulfillment of the requirements for the degree Master of Arts in Education Major in Educational Management.

In this regard, may I request permission from your good office for me to administer my questionnaires for the said study to the pupils at the intermediate grade of Sta. Marcela Central School of Sta. Marcela District. Rest assured that the data which I will gather will be kept with utmost care and confidentiality and that it will be used only for the purpose of this study.

I anticipate my sincerest thanks for your approval to this request. God bless and more power!

XXXX
Researcher

Noted:

XXXX
Adviser

Approved:

XXXX
School Principal-II

Appendix D

LETTER-REQUEST TO THE RESPONDENTS

Republic of the Philippines
CAGAYAN STATE UNIVERSITY
Sanchez Mira Campus
Sanchez Mira, Cagayan

December 4, 2020

Dear Respondents:

The undersigned is currently conducting a study titled **"Attitude and Achievement of Pupils in Sta. Marcela Central School Towards Math Manipulatives"**, in partial fulfillment of the requirements for the degree Master of Arts in Education Major in Educational Management.

In this connection, the researcher earnestly solicits your cooperation in accomplishing the questionnaire knowing that your responses will greatly help in the success of this study. Be rest assured that all information to be gathered will be treated with utmost confidentiality.

Thank you very much.

Very truly yours,

XXXX
Researcher

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DEFINITIONS, ACRONYMS, ABBREVIATIONS

Here is the Definitions section. This is an optional section.
Term: Definition for the term

Achievement: refers to the General Weighted Average of pupils in Mathematics.

Attitude Towards Mathematics: refers to the pupil's self-assessment on their behavior as an effect of the teacher's usage of manipulative.

Attitude Towards Math Module: refers to the attitude of pupils in accomplishing Math Modules.

Grade Level: refers to the pupils academic level in school in accordance to his age.

Manipulative: refers to the use of concrete objects in teaching Mathematics allowing pupils to answer Math problems with first-hand experience.

Math Achievement of Pupils: refers to the quarter grade obtained by the pupils.

Module: is a book or workbook of reference made by lecturers in individual polytechnics to fit the unique needs and interests of their students and aims at the comprehensive development of reading, writing, listening and speaking.

Modular Learning: is an alternative instructional design that uses developed instructional materials which are based on the needs of the students.

Parent's Educational Attainment: refers to the highest grade level completed by parents.

Parent's Occupation: is the main work undertaken by the parent or guardian.

Profile Variables: refers to the sex, educational attainment parents and occupation of the parents of the respondents.

Sex: is the state of being male or female. It is the identity of the respondent.