CORRELATES OF MATHEMATICS ACHIEVEMENT OF GRADE VI PUPILS IN DARAM I DISTRICT

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APPROVAL SHEET

In Partial fulfillment of the requirements for the degree, **MASTER OF ARTS IN TEACHING MAJOR IN MATHEMATICS,** this thesis entitled **"CORRELATES OF ELEMENTARY TEACHERS' PERFORMANCE IN THE DISTRICT OF DARAM I"** has been prepared and submitted by **CLARIFEL D. ESTRADA,** who having passed the comprehensive examination is hereby recommended for oral examination.

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DEDICATION

The researcher is humbly dedicated to all my inspiration in life....

TATAY and NANAY

Lola and Tita Nita

Sons

Mark, Karl, Josh and Jeff

My hubby

Amador

Clarifel

ABSTRACT

This study determined the correlates of mathematics achievement of Grade VI pupils of public elementary schools in Daram I District, Daram, Samar. This is a descriptive-correlational type of research with the use of questionnaire-checklist as the principal instrument in gathering data. The respondents of the study consisted of 368 pupils and six math teachers of Daram I District. The correlation of pupils-related variates and level of achievement in mathematics reveal that: age, parents' educational background (both mother and father) and final grade in Math V (previous math) to be significant. No significant relationship was found between: 1) sex, 2) income, 3) parents occupation, 4) attitude toward math, and 5) level of math anxiety and the level of math achievement of the pupils. The teachers-related variates which is significantly related to level of performance in mathematics are age, civil status, average family monthly income, educational attainment, grade level taught, and attitude to PTCA meetings the academic performance of their children in school and what they can contribute for the enhancement of their children studies in terms of supervision in Mathematics. There is a need for the pupils of Daram I District to be constantly supervised in their studies by their teachers so that their performance in the Standardized District Achievement Test would be further enhanced or improved and supervision should be more focused on the content of the lesson. The parents and teachers should direct their supervision of pupils' studies to the development of the pupils' knowledge on the least learned skills in Mathematics.

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Chapter 1

THE PROBLEM AND ITS SETTING

Introduction

Mathematics plays a significant role in society as evidenced by its diverse effects on practically all aspects of human life. One of its influences is manifested in the field of technology where remarkable advances could not have been possible without the application of mathematical procedures. Because of its universal application, mathematics has gained a respectable position as a powerful tool for societal developments (Mitchell and Gilson, 1997: 58).

It is that universal application that has set mathematics apart from any other disciplines as it is usually regarded as a difficult subject. Also, it has created a notoriously inconsistent perception of the subject and elicited varying emotional responses from learners. Thus, those who excel in the subject have become more the exception as they are often treated as though they are not normal while those who do not find enjoyment of it have been considered normal.

This perception about the subject is perpetuated by many school teachers, including those whose job it is to teach mathematics, who communicate this attitude to their pupils directly or indirectly (Arem, 1993: 406). The end result is that pupils become exposed to widely-believed myths about mathematics at an impressionable age.

Meanwhile, pupils from the Philippines obtained an average in mathematics posted at 345, interpreted as significantly lower than the international average (TIMSS, 1999). This is further validated by the Asian Development Bank (ADB) Foundation which revealed that in the May 2004 High School Readiness Test, grade six graduates obtained very low scores in mathematics test.

Despite the efforts exerted by the education sector to uplift our students' performance in science and mathematics, evaluations conducted in 2003 by the Trends in International Mathematics and Science Study (TIMSS) of the International Association for the Evaluation of Educational Achievement (IEA) show scores below set international benchmarks. However, TIMSS results also revealed that some regions have improved their ranks in Science Achievement from 1999 - 2003. These include CAR, Regions I, III, V, VII, and XII (http://www.dost.gov.ph). This result however revealed that Region VIII had not improved in science and mathematics.

TIMSS pointed out some factors contributing to the students' performance in the 2 subjects: Availability of school resources, Instructional Materials and Equipment, Computer Use, Class Size, Teacher Qualification, and Language of Test. These factors are continuously being addressed by the government with the major roles of the Department Education (DepEd), Commission on High Education (CHED), and the Department of Science and Technology (DOST) through its Science Education Institute (DOST-SEI) (http://www.dost.gov.ph).

Officials of the Department of Education (DepEd) announced that the 2005 results of the National Achievement Test (NAT) revealed scores higher than those in the previous year, with grade six pupils scoring 58.73 percent which noted a nine percent increase over the previous year's score of 50 percent (http://www.deped.gov.ph). Grade six pupils scored 59.10 percent in mathematics which is an improvement of nearly ten points over last year's 49.76 (http://www.deped.gov.ph).

The 2006 National Achievement Test (NAT) results reflected a declining education performance of the pupils in the country with the Grade 6 pupils averaging an overall achievement rate of only 54.5%, decreasing by four percentage points from the previous year where the pupils averaged 58.7% (http://www.nscb.gov.ph). Among the subject areas, Grade 6 pupils scored highest in Filipino, with Mathematics receiving a mean percentage score of 53.5% (http://www.nscb.gov.ph).

As shown in the decrease of mean percentage score in mathematics from 59.10% in 2005 to 53.5% in 2006, there remains a question of what must be done to provide consistency in achieving better results and in posting a better average in international examinations. Many researchers have focused attention on the school's capacity to provide instruction, classroom teaching methods, teachers' scholastic performance in mathematics and parents' educational attainment. Although the result of the 2005-2006 National Achievement Test (NAT) in Mathematics in Daram I District posted at 75.16 which is slightly above the

proficiency level, there still remains a question of what must be done to provide consistency in achieving better results and in posting a better average in international examinations.

Many researchers have focused attention on the school's capacity to provide instruction, classroom teaching methods, teachers' scholastic performance in mathematics and parents' educational attainment. Acelajado (2003: 4) maintained that what they failed to take into account is the non-cognitive domain that affects pupils' achievement in mathematics. Non-cognitive aspects such as anxiety and attitude towards mathematics cause pupils to lose confidence in the manipulation of numbers and the solving of mathematical problems (Acelajado, 2003: 4). These aspects are very real and happen in the classroom due to lack of consideration on how they impact on pupils' achievement.

In view of this, Philipps (2004: 3) suggested that reform in mathematics education should move from discussions about structural factors to psychological perspectives. It implied that curriculum redirection should put premium on the role, views and attitudes of the most relevant parts of the learning process, the teachers and the pupils.

To which, the elementary mathematics teachers in Daram I District have seconded. In an informal interview among these teachers, it was found out that they want to welcome curriculum change which will re-examine their teaching methods and their attitudes toward teaching the subject, if there be any. This

encouraged the researcher, being a mathematics teacher in one of the public elementary schools in said district, to give attention to non-cognitive dimensions of the learning process. Hence, the researcher is motivated to pursue a study which will try to find the relationship between the teachers' attitude towards mathematics and pupils' mathematics anxiety and pupils' achievement in mathematics.

Statement of the Problem

This study determined the correlates of mathematics achievement of Grade VI pupils of public elementary schools in Daram I District, Daram, Samar.

Specifically, this study tried to shed light to the following questions:

1. What is the profile of the teachers with respect to the following:

    1.1 age and sex;

    1.2 civil status;

    1.3 average family monthly income;

    1.4 educational attainment;

    1.5 grade level taught;

    1.6 teaching load;

    1.7 teaching experience;

    1.8 relevant trainings/seminars attended; and

    1.9 latest performance rating

    10 attitude towards mathematics teaching?

2. What is the profile of the pupils in terms of the following:

2.1 age and sex;

2.2 average family monthly income;

2.3 grade level;

2.4 parents' educational attainment;

2.5 parents' occupation;

2.6 final grade in mathematics in the pervious year;

2.7 attitudes toward mathematics, and

2.8 level of mathematics anxiety?

3. What is the pupil-respondents' level of achievement in mathematics based on the standardized school-based test?

4. Is there a significant relationship between the pupil-respondents' level of achievement in mathematics and each of the following variates:

4.1 teacher-related variates; and

4.2 pupil-related variates?

Hypothesis

The following hypothesis was tested in this study.

1. There is no significant relationship between the pupil-respondents' level of achievement in mathematics and each of the following variates:

1.1 teacher-related variates; and

1.2 pupil-related variates.

Theoretical Framework

The study is primarily anchored on the Social Cognitive Theory espoused by Bandura (1986: 25) which maintained that individuals possess beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions that what they think, believe, and feel affects how they behave.

Along this light, the anxiety that pupils experience in mathematics may be influenced by the following: (a) beliefs about the nature of mathematics, (b) beliefs about the way of learning and teaching mathematics, (c) beliefs about their competency, and (d) beliefs about their respective teachers. Thus, pupils behave according to their beliefs about their capabilities than by what they are actually capable of accomplishing.

These self-efficacy perceptions help determine what they do with the knowledge and skills they have which, in turn, explain why their behaviors toward mathematics may differ widely even when they have similar knowledge and skills in the said subject (Bandura, 1986: 391). It is thus an opportunity that this study is conducted because this study tried to see the relationship between the pupils' level of mathematics anxiety and their achievement in mathematics and how some factors influence both their mathematics anxiety and their achievement in the same subject.

It must, however, be understood that teachers and stakeholders in education should be able to identify what level of cognitive thinking pupils belong for them to be able to find the appropriate approach to learning and

teaching mathematics. This brings to fore the "Theory of Cognitive Development"espoused by Piaget (1958: 2) upon which this study is also founded.

The theory averred that individuals evolve in sequential stages of cognitively different level of intellectual development beginning with the sensory-motor stage and ending in formal operational stage (Piaget, 1958: 2). The concrete operational stage occurs at seven to eleven years of individual's life when the initial period of logical thought begins.

Pupils in the elementary grades are expected to be in the concrete operational stage when the initial period of logical thought begins. For this reason, the basic education curriculum for elementary mathematics should be designed according to the concrete operational stage level of the students, including initiating them to learning activities that encourage logical reasoning.

Finally, this study finds basis in Vygotsky's (1978: 65) "Social Cognition Learning Model" that asserts that culture is the prime determinant of individual development. Therefore, a child's learning development is affected by the culture, including the culture of family environment, in which he is enmeshed.

In this theory, it is assumed that the child's cognitive development results from a dialectical process whereby a child learns through problem-solving experiences shared with someone else, usually a parent or teacher but sometimes a sibling or peer. Initially, the person interacting with child assumes most of the

responsibility for guiding the problem solving, but gradually this responsibility transfers to the child.

The curriculum should be designed to emphasize interaction between learners and learning tasks and assessment methods must take into account what children can do on their own and what they can do with help.

Conceptual Framework

The study is schematically presented in Figure 1 in the next page.

The base frame of the schema shows the respondents of the study - the teachers and pupils of complete public mono grade elementary schools in Daram I, District, Daram, Samar, which served as the research environment of the study. The base frame is linked to a higher and bigger frame which represents the research process. As shown there are three smaller boxes in this big box, the two boxes below represents the teacher-related variates and the pupils-related variates and the upper box represents the level of achievement in mathematics of the pupils. The arrow linking the lower and the upper boxes denotes the correlation between the variables of the study. This means that the pupils-related variates such as age and sex, average monthly family income, grade level, parents' educational attainment, parents' occupation, final grade in Mathematics V, attitude towards mathematics and level of mathematics anxiety would be correlated to the level of achievement in mathematics of the pupils which is measured by the standardized school based test. Also, the teachers-related

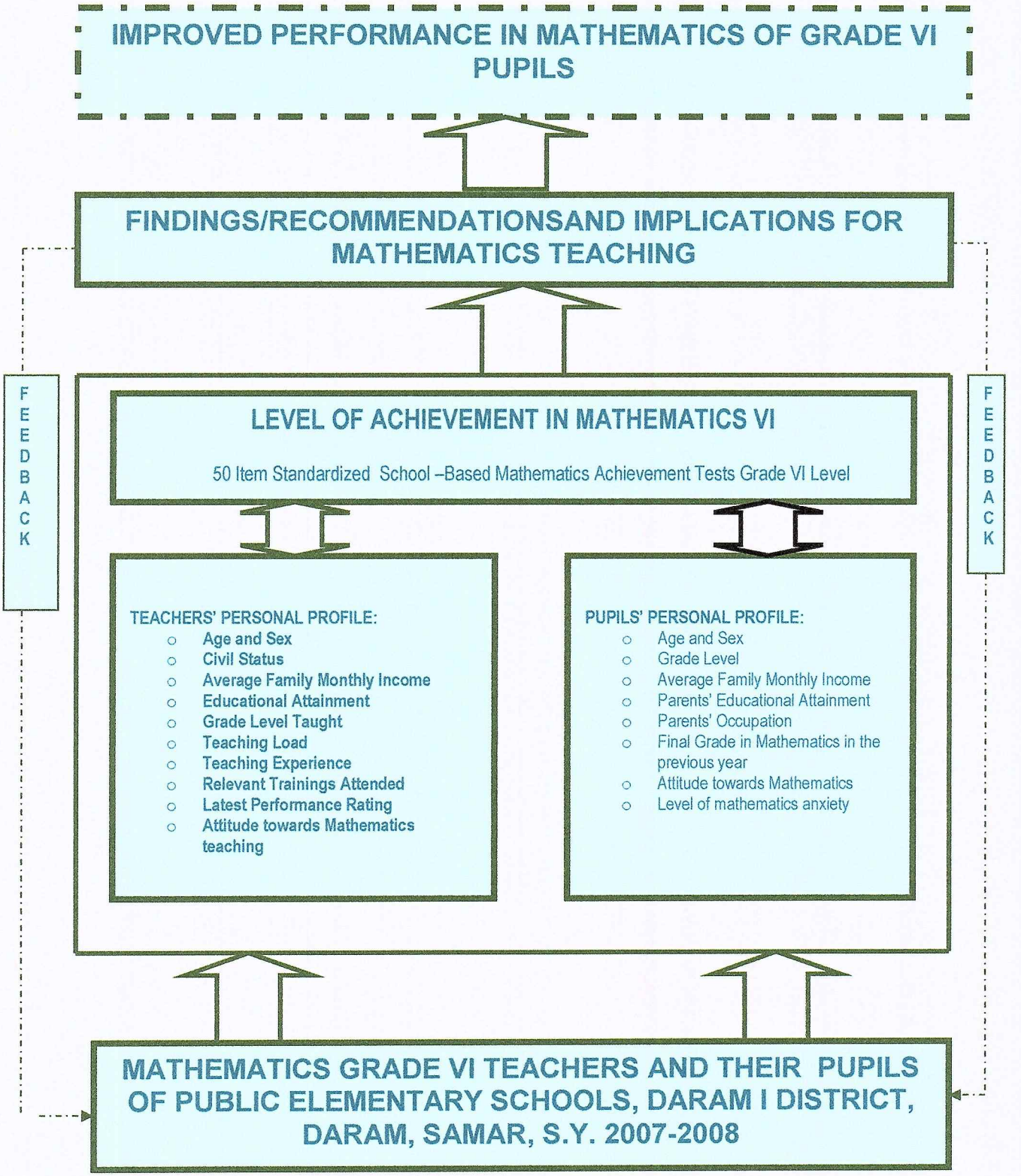

Figure 1. The Conceptual Framework of the Study

variates such as, age and sex, civil status, average family monthly income, educational attainment, grade level taught, teaching load, teaching experience, relevant training/seminars attended, latest performance rating, and attitude towards Mathematics teaching would be correlated to the level of achievement in mathematics of the pupils as measured by the same test (standardized school based test).

As shown by the third higher frame, the findings of the study are hoped to serve as insights and/or recommendations for elementary mathematics teaching. With these insights in elementary mathematics teaching, the researcher aims to improve the mathematics achievement of pupils, found at the apex of the schema.

Significance of the Study

The study finds particular importance among teachers, pupils and administrators of public elementary schools. This will also be significant to the education stakeholders, parents, and community and future researchers.

To the teachers. This is especially important to teachers in the elementary grades because this would provide knowledge regarding their attitudes toward teaching mathematics and how their pupils fare in mathematics. Having such knowledge, coupled with their background about their attitude towards mathematics teaching, they will be able to devise teaching methodologies that

will provide comfort and ease among their pupils so as to promote learning in said subject.

To the pupils. This research would enable them to re-assess their achievement in mathematics by reflecting upon their performance toward mathematics.

To the school administrators. They would have the opportunity to draw a profile of their teachers and pupils, the main actors of the learning process. As for the teachers, the school administrators would have idea as to how they view teaching in mathematics in order to lobby for policies concerning the improvement of their attitudes toward teaching. As for the pupils, they would be able to note about their achievement in mathematics which would, in turn, enable them to campaign for further improvement in terms of increasing school facilities in mathematics, among other things.

To the education stakeholders. This study would serve as aid in their policy-making effort specially in terms of putting in place an attitude rating scale in their performance evaluation mechanism. Moreover, this would enable them to think about establishing policies for the reduction of anxiety among pupils by funding researches such as this one.

To the parents. This study would make parents take active role in their children's education by giving homeroom requirements that will enhance parent-children interaction in mathematics. This will provide time for parents to ask their children regarding their attitude towards mathematics, their fears about

learning the subject and the areas where they find difficulty in understanding. Having such knowledge, they can help the school in airing out their children's fears, attitudes and difficulties in mathematics during parent-teachers' meetings.

To the community. Mathematics is a powerful tool for development because it helps in understanding economic forces such as inflation rates and currency exchange rates. As such, developing children population with mathematical potential will make a community economically viable in the future. It is for this reason that this study is important.

To the future researchers. The present research would give future students in research a precedent. Future researchers may use the findings of this study to develop a learning program that will reduce mathematics anxiety among pupils. This will also benefit them by giving idea as to what type of research they would have to conduct to effectively improve achievement in mathematics, aside from the teachers' attitudes toward mathematics teaching and pupils' mathematics anxiety.

Scope and Delimitation

The present research determined the relationship of the pupils-related variates, and teachers-related variates with pupils' level of mathematics achievement. The study involved the Grade VI mathematics teachers and pupils of Baclayan Elementary School, Bagacay Elementary School, Rizal Elementary School, Parasan Elementary School, Daram I Central

Elementary School, Astorga Elementary School, in Daram I District, Daram, Samar. These elementary schools are the complete elementary schools and with mono grade classes in the district. Total enumeration was employed to determine the teacher-respondents and the pupil-respondents of the study.

In the meantime, a researcher-made questionnaire, Modified Mathematics Teaching Attitude Scale (MMTAS), Modified Mathematics Attitude Scale (MMAS), Modified Mathematics Anxiety Rating Scale (MMARS), achievement tests, and documentary analysis were utilized to gather the data of the study.

Descriptive statistical tools such as frequency count, percentage, mean and weighted mean were used to compute and analyze the profile of the two groups of respondents, the extent of pupils' mathematics anxiety, among others. By contrast, inferential statistical instruments such as Pearson Product Moment Coefficient of Correlation (Pearson r) and Fisher's t-test were employed to test the hypothesis of the study. Finally, the present study was conducted during the school year 2007-2008.

Definition of Terms

The following terms are herein defined to provide common frame of references among the readers of this research.

Achievement. It is defined as the actual accomplishment as distinguished from potential ability, capacity or attitude (Good, 1959: 7). In this study, this refer to the pupil-respondents' successful completion of learning mathematics which

was based on their scores in the school-based achievement test of 50 items administered to the grade VI pupils.

Achievement test. It is defined as a measure of how well a student has mastered specified instructional objectives (Aquino, 1988: 417). For this study, this refers to the standardized school-based test of 50 items in mathematics administered to the grade VI pupils.

Anxiety. It refers to an emotional state of individuals in which people feel uneasy, apprehensive, or fearful (Microsoft Encarta Dictionary, 2003). In this research, this refers to the pupil-respondents' uneasiness, apprehension and fear in mathematics which was determined through the Modified Mathematics Anxiety Rating Scale (MMARS) adopted from Quilter and Harper (1988: 123).

Attitudes. These pertain to learned predispositions or tendencies on the part of an individual to respond positively or negatively to some object, situation, concept or another person (Aiken, 1996: 71). As applied to this present research, this term refers to the pupil-respondents' learned predispositions toward mathematics or teacher-respondents teaching mathematics.

Attitudes toward mathematics. It refers to the learned predisposition to respond in a consistently favorable or unfavorable manner to mathematics, either as a teacher or as a learner (Lefton, cited in McLeod (1992: 596). In this study, the term refers to the grade VI pupil-respondents' responses on a 20-item Modified Mathematics Attitude Scale (MMAS) adopted from Acelajado (2003: 1).

Attitudes toward Mathematics teaching. It refers to the learned predisposition to respond in a consistently favorable or unfavorable manner to mathematics teaching (Lefton, cited in McLeod (1992: 596). In this study, this was determined through the teacher-respondents' responses on a 20-item Modified Mathematics Teaching Attitude Scale (MMTAS) adopted from Fennema and Sherman (1976: 71).

Basic education. It refers to education intended to meet basic learning needs, instruction at the first foundation level, in which subsequent learning can be based (deped-rsd@pacific.net.ph). As for this study, this term encompass elementary education, particularly in mathematics.

Elementary education. It is the stage of formal education primarily concerned with providing basic education and usually corresponding to six or seven grades (deped-rsd@pacific.net.ph). The term is defined in this study as it is conceptualized above.

Elementary school. Conceptually, it refers to a school offering elementary education. Operationally, however, this term will be taken to mean schools offering elementary education in Daram I District, which includes Baclayan Elementary School, Buenavista Elementary School, Bagacay Elementary School, Poso Elementary School, Rizal Elementary School, Parasan Elementary School, Daram I Central Elementary School, Valles Elementary School, Astorga Elementary School, San Roque Elementary School, and Pundang Elementary School.

Final grade in mathematics. This term refers to the final rating in mathematics obtained by the pupil-respondents after fulfilling all the academic requirements of the said subject.

Grade level. This refers to a stage of instruction usually covered in the course of a school year (deped-rsd@pacific.net.ph). For this study, the term refers to the sixth grade level which, is the level of the sample pupil-respondents' of the study.

Length of service. A conceptual definition of this term was emphasized by Leavitt (1996: 1) as the number of years a person has been employed by his current employer. Nevertheless, the operational definition of this term focused on the number of years the teacher-respondents have been in the position/office/designation they are occupying.

Mathematics. It is the study of relationships among quantities, magnitudes, and properties and of logical operations by which unknown quantities, magnitudes, and properties may be deduced (Microsoft Encarta Encyclopedia, 2002). The term was used here in this study as it is defined above, except that this specifically focused on elementary mathematics.

Mathematics achievement. It refers to the performance of students in mathematics, as measured by their grades. In this study, however, this refers to the performance in elementary mathematics of pupils of public elementary schools in Daram I District, determined through their scores in the standardized school-based achievement tests in mathematics.

Mathematics anxiety. Conceptually, it refers to the feelings of tension that interfere with the manipulation of numbers and the solving of mathematical problems in a wide variety of ordinary life and academic situations (Tobias, 1993: 10). Operationally, this pertain to the pupil-respondents' responses on a 30-item Modified Mathematics Anxiety Rating Scale (MMARS) adopted from Quilter and Harper (1988: 123).

Modified Mathematics Anxiety Rating Scale (MMARS). This was a 30-item rating scale which draw the pupil-respondents' level of mathematics anxiety and is adopted and modified from Quilter and Harper (1988: 123).

Modified Mathematics Attitude Scale (MMAS). This was a 20-item rating scale which was adopted from Acelajado (2003: 1) to get the pupil-respondents' attitudes toward mathematics.

Modified Mathematics Teaching Attitude Scale (MMTAS). This was a 20-item rating scale which was adopted from Fennema and Sherman (1976: 75) which draws the teacher-respondents' attitudes toward mathematics teaching.

Pupils. They are the children enrolled in the elementary level (deped-rsd@pacific.net.ph). For this study, they were the pupils enrolled in the public elementary schools in Daram I District, Daram, Samar, during the school year 2007-2008 who were involved as respondents of this research.

Teachers. As defined, they are persons employed in an official capacity for the purpose of guiding and directing the learning experiences of pupils in an educational institution (deped-rsd@pacific.net.ph). Operationally, they are

persons who guide and direct learning experiences of pupils in public elementary schools in Daram I District, Daram, Samar, who were one of the respondents of this study.

Teaching experience. This refers to the length of service spent by the teacher-respondents in teaching in the elementary grades.

Teaching load. This refers to the number of subjects or courses assigned to a particular teacher (deped-rsd@pacific.net.ph). In this study, this pertains to the number of subjects assigned to an elementary teacher in public elementary schools in Daram I District, Daram, Samar.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

The following discussions are excerpts from books, journals, periodicals, unpublished materials such as master's theses and dissertation papers, electronic and other sources that are relevant to the present study.

Related Literature

A review of ideas found in books, journals, periodicals, electronic and other sources are discussed here as they relate to the present research.

The study of mathematics carries with it a stigma that affects both the teacher and the learner. The social construct that mathematics is a difficult subject causes pupil to express mathematics anxiety which they seem to think is common only to people who are slow in mathematics. What they do not realize is that mathematics anxiety is common in varying degrees either to those who are talented at math or to those who do not profess enjoyment of it.

Schaffer (2004: 1) defined mathematics anxiety as uneasiness when asked to perform mathematically, avoidance of mathematics classes until the last possible moment, feelings of physical illness, faintness, dread or panic, inability to perform on mathematics test and utilization of tutoring sessions that provide very little or no success. Although all pupils experience anxiety in dealing with mathematics, for some it is a serious problem that interferes with their ability to achieve so much in mathematics.

Besides the inherent features of mathematics, anxiety towards the subject may find origin in classroom setting and at home. Spikell (1993: 10) identified a traditional classroom setting as something that causes anxiety because of the pressure of timed tests, teachers' imposing authority to arrive at a single right answer for every mathematical problem and timed deadlines for submission of assignments. It can also be brought about by pupils' prior experiences in the subject which may be attributed to parents who do not show their children how numbers are used in various aspects of family life such as in budgeting financial resources.

The feeling of tension and uncomfortable feeling in mathematics is even more complicated by the absolutist and instrumental view that teachers have towards mathematics. Thompson (1992: 36) opined that teachers who maintain such view commit the mistake of conceptualizing mathematics as an accumulation of facts, rules, procedures and theorems. In the actual learning situation, the teachers may be concerned mostly with (a) mathematical content with an emphasis on computational execution or conceptual understanding, and (b) students' or classroom management. This overemphasis on these factors neglects the more important aspects, fun side, of the learning process.

By contrast, students have been found to hold strong rule-oriented view of mathematics and assume that mathematical questions should be quickly solvable in just few steps to get the "right answers". Frank (1988: 33) may have been correct that the role of the pupils is to receive mathematics knowledge and to be

able to demonstrate it while the role of the teacher is to transmit this knowledge and to ascertain that the pupils have acquired it. There is a greater risk that such views may prevent pupils from understanding that there are other ways to learn mathematics.

Likewise, these views may make pupils miss significant math experiences that may, in turn, cause the development of a narrow frame of reference for the same subject. McLeod (1992: 1) stressed that mathematics experience is prejudiced even more by the attitudes that teachers and students have toward mathematics. The attitudes that pupils bring into the classroom are factors that can impede learning math or hinder the extent to which they develop useful math skills and apply them to experiences outside the classroom (Gal and Ginsburg, 1994: 1).

Stakeholders in education should take this in consideration without prejudice to the fact that each pupil will progress at a different tempo and at a different depth (Philipps, 2004: 59). This is consistent with Belkin and Gray's (1977:59) thought that pupils learn with teachers arranging special contingencies which expedite learning, hastening the appearance of behavior which would otherwise be acquired slowly or making sure of the appearance of behavior which otherwise never occur.

Hence, this study was conceptualized by the researcher to find whether there exists a relationship between teachers' attitudes toward teaching, as they

organize learning experiences, and pupils' mathematics anxiety, which may hamper learning of the subject, and their achievement in mathematics.

Many different conditions affect the efficiency as well as the amount of an individual's learning. Some of these conditions are his mental ability, degree of maturation, readiness, interest, attitudes, experimental background, mental and physical health, previous achievements and social adaptability (Aquino and Razon, 1985: 202).

Another author said that in learning Mathematics, students learn more effectively when they are interested in what they learn and that they will achieve better in Mathematics if they like and enjoy it. Hence, continuous attention should be directed towards creating, developing, maintaining and reinforcing positive attitude (Jadar and Quinn, 1987: 3666). A positive attitude is needed to enjoy and love subject especially in Mathematics, which is found by the students as a hard one. Individuals should not look on this hardness. Instead, look on the enjoyment and the challenges it would give. Through this, they will get interested to learn the subject. Attitudes are formed through learning that begins early in life. The behavioral dimension of attitude determines how people actually showed their beliefs and evaluate feelings. Caciapyo (1992: 15) indicates that one of the basic process underlying attitude formation and development can be explained on the basis of learning principles. People develop association between various objects and emotional reactions that accompany them. For

instance a student who was punished by his instructor for "several times" never wanted to create mistakes again. Put another way, the student formed negative attitude towards the instructor and even towards the subject. Hence it attests the power of one's impression and the importance of determining how people develop and understanding of others.

Sex could also be a predictor of mathematics performance as pointed out by Deux, cited by Bank, et. al (1988:365), stating the sex is a strong predictor of human contact and many differences have been documented between the attitude, behavior and achievement of males and females. Females are superior to males in verbal ability from 10– 11 years old. Males are superior in quantitative skills and visual spatial ability from the onset of adolescences. Archer and Loyd (1985:203) document gender differences in intellectual ability. They found out male superiority in mathematical ability, which they described also in early adolescences. Levy (1990: 313) as cited by Schemesh, stated that the male superior performance of cognitive task is due to their ability to extract spatial and logical relationship independently of the contextual components of the task. The ability helps them to cope with the rather abstract scientific concepts, especially when the concepts introduced are mathematically quantitative. Girls on the other hand are less analytical, and tend to elucidate the meaning of the concept from the connotative content. They also pass the ability to form association between seemingly unrelated ideas.

Prizes (1990) view mathematics problem solving as a complicated process that involved different abilities or skills. According to her, success in problem solving depends on several factors; intelligence, reading ability, age or maturity, training background and others. It is for this reason that teachers should give more regard of the development of the skills in solving word problem.

According to Ashlock (2001), errors in computation are not necessarily just the result of carelessness alone or not knowing how to proceed. Some errors are based or faulty or incompletely learned mathematical concepts. These errors follow patterns. These are: 1. Wrong Operation. The pupil attempts to respond by performing operation other than the one that is required; 2) Obvious Computational Error. The pupil applies the correct operation but his response is biased or error in recalling basic number facts; 3) Defective Algorithm. The pupil attempts to apply the correct operation but makes errors in carrying through the necessary steps; 4) Random Response. The response shows no discernible relationship to the given problem.

Related Studies

The foregoing discussions are excerpts from unpublished materials such as master's theses and dissertation papers from local and foreign authors that are found to be significantly related to the present research.

In a study entitled "The Relationship of Mathematics Performance of the Second Year Students to their Level of Anxiety in Mathematics", Cunanan (1999)

showed that seventy-five percent (75%) of the respondent had poor mental ability with high level of anxiety in the area of social responsibility and high level of anxiety emotionally, and high level of anxiety in numerical test.

It also found out that the mathematics performance of the students was significantly related to their levels of mathematics anxiety in the three areas. The study showed that the poor performance of students in mathematics is due to their high level of mathematical anxiety.

On the basis of the research findings, the researcher recommended that school administrators together with mathematics teacher should formulate and provide activities that will lessen the mathematics anxiety of the students.

Given that the previous study aimed to determine only the relationship of the mathematics performance of second year students with their levels of anxiety in mathematics in the areas of social responsibility, emotional and numerical test anxiety, it is therefore different from the present study. The present study will correlate not only the respondents' achievement in mathematics and their level of anxiety in the same subject, but also their teachers' attitudes toward mathematics teaching and some personal variates.

In addition to the foregoing, Cunanan's study also differed in terms of respondents of the study, instruments used in gathering the needed data as well as in terms of statistical tools used. Yet, it is cited here as it provides baseline information how mathematics achievement correlated with level of anxiety which is one aspect that the present study will delve into.

Meanwhile, in a research which was conducted by Taylor (2004), it was revealed that significant within-class gender differences were found in four areas of the learning environment, namely, (a) student cohesiveness, (b) task orientation, (c) cooperation, and (d) equity, but no gender differences in attitudes were found. All four learning environment areas were perceived in a more favorable light by females than by males. Individual gender differences were similar, with a significant difference also being found in teacher support, as well as both types of mathematics anxiety, namely, learning mathematics anxiety (LMA) and mathematics evaluation anxiety (MEA).

While no association between the learning environment and mathematics evaluation anxiety was found, there were significant associations between learning mathematics anxiety and three areas of the learning environment, namely, student cohesiveness, task orientation, and investigation. Furthermore, it found out significant relationships between the normality of mathematicians attitude scale and the learning environment scales.

Qualitative data analyses confirmed relationships between anxiety, attitudes, and classroom learning environments. The data also suggest that the structure of the mathematical content is linked with the level of anxiety that high school students feel.

Despite of the fact that the preceding investigation was done in a foreign research environment, they are nevertheless similar considering that both studies

are concerned with finding the relationship between classroom environment and mathematics anxiety and attitudes.

Another study worthy of note in this present study was conducted by Kiamanes (2004). In this study, math self-efficacy, math self concept, perceived usefulness of mathematic, math anxiety and gender were employed as main predictors of math achievement. Using regression analysis and path analysis method, the math self-concept and math anxiety was highly correlated.

The results showed that math self-efficacy is a strong predictor of math achievement compared to math self-concept, perceived usefulness of mathematics and gender. The direct effect of math self-concept and perceived usefulness of mathematics on math achievement was not significant. The mediating role of math self-efficacy between gender, math self-concept, and perceived usefulness of mathematics and math achievement was confirmed.

Meantime, the regression analysis showed that math self-concept and gender explained significantly 8.6 and 3.8 percent of the variance in the math achievement score, respectively. The difference between males and females in math self-efficacy, math self-concept and math achievement were significant. However, the difference between perceived usefulness of mathematics for both genders was not statistically significant.

The similarity between the previous study and the present one lies on the use of mathematics anxiety and gender as predictor variables of mathematics achievement. However, the present study will not go to the extent of

determining the relationship between math self-efficacy, math self-concept and perceived usefulness of mathematics and math achievement.

Woodard (2004) examined the nature of math anxiety in students and how it related to their achievement, gender and age. After data analysis, the researcher indicated that there is a significantly low negative relationship found between exit exam scores and math anxiety scores, which meant that as math anxiety scores increase, achievement scores decrease.

Also, the results indicate that female math students are significantly more math anxious than male students. However, no significant difference in the math anxiety of traditional-aged and nontraditional-aged was indicated in the study.

Recognizing the causes of math anxiety as poor math instruction, negative attitudes about math, negative math experiences, and low self-esteem, the researcher recommended that instructors can help students realize that myths such as math aptitude being genetic and math being a male domain are simply not true. In class, they can also implement prevention and reduction techniques. More importantly, teachers can become more flexible when grading math tests by checking the procedure instead of only checking the answer, as this gives the teacher an understanding of where the student needs help.

The previous study is similar to the present study given that both deal with mathematics anxiety and how this may be influenced by gender and age. Both studies also converged on the same point, that is, how mathematics anxiety influences mathematics achievement of students.

The more obvious differences of the two studies are as follows: (a) while the previous research was held in the United States where mathematics instruction is more advanced, the present study will be conducted in Daram I District which remarkably lags behind in terms of curriculum development, (b) the respondents of the Woodard study were post-secondary developmental students who are presumed to be mathematically more adept since they are in a higher level of education, as opposed to the present study which will involve pupils of public elementary schools in Daram I District, and (c) the present study will only be a descriptive-correlational type of research, contrary to the previous study which was experimental.

Yet, it is cited here as it served a precedent to the present study in terms of finding the relationship between mathematics anxiety and achievement in mathematics among pupils of public elementary schools in Daram I District, Daram, Samar.

This study also finds similarity with Balisi's (1998) study on "Mathematics Achievement of Grade I Pupils: An Assessment". The findings revealed the following: (a) majority of the pupils are seven years old, and 53 percent male and 47 percent female, (b) majority of the fathers are high school graduates, factory workers and drivers with only five percent businessman and three percent overseas contract workers, (c) majority of the mothers are high school graduates, housekeepers and factory workers with four percent businesswoman and one percent overseas contract workers, (d) more matured pupils perform better in

mathematics class, and (e) there is a significant relationship between pupils' mathematics achievement and the educational attainment of their parents and between parents' occupation and the achievement of pupils in mathematics.

Dacuro (1995) experimented pre-developed lesson plans and its effect on the achievement in English of Grade VI pupils which revealed that: 1) high educational qualification and favorable attitude of teachers greatly influenced achievement of grade VI pupils in English. It was concluded that any strategy under the expert manipulation of a skillful teacher was effective.

He recommended that: 1) since high educational qualification greatly influenced achievement, teachers in English should update themselves and improve their teaching competencies by attending summer or weekend MA classes and in-service training along English teaching, 2) in order to achieve high performance teachers must possess a high sense of commitment and sincerity in their work. The pre-developed lesson plans necessitated proper and honest – to - goodness implementation of the material specifically on lesson mastery preparation, and implementation effective utilization of the suggested activities, teaching aids, and the like.

The study of Balisi included parents' educational attainment and parents' occupation as variates that determined mathematics achievement of grade I pupils. It is for that reason that it is related to the present study which will also find the relationship between same variates and pupils' mathematics

achievement. However, the two studies have differences in terms of scope of the study, other variates involved and statistical tools used.

Brucal (1998) aimed to analyze the mathematical achievement of 352 grade one pupils in ten sections of Francisco Benitez Elementary School in Makati City. The findings revealed that 42.61 percent of the grade one pupils show average level of achievement, 18.18 percent, above average and 8.24 percent exhibit high level of achievement in mathematics.

It further indicated that the strengths of the pupils were on the following (a) adding two-digit numerals without regrouping, (b) identifying circles and time, and (c) adding one-digit numerals. On the contrary, the weaknesses of the pupils were on subtracting two-digit numerals without regrouping and identifying fractions equal to 1/4 of a numeral. More importantly, it found out that there is no significant difference in the achievement level of males and females.

Given the foregoing findings of the study, Brucal strongly recommended the use of cooperative learning to attain higher level of achievement, competent and knowledgeable teachers should handle mathematics classes and periodic evaluation, training and supervision of teachers are needed to improve teaching competencies.

Brucal's study and the present one are both concerned with the respondents' mathematics achievement. But, they differ significantly in terms of

scope of research, respondents involved, statistical treatment employed and variates used.

In the meantime, Newstead (2000), in a study entitled "Aspects of Children's Mathematics Anxiety", focused on mathematics anxiety in nine- to eleven-year-old children and compared the mathematics anxiety of pupils taught in a traditional manner with that of pupils whose teachers adopted an alternative teaching approach, with emphasis on problem-solving and discussion of pupils' own informal strategies.

One of the most significant findings was that children between the ages of nine and eleven reported a significant amount of anxiety about the social, public aspects of doing mathematics in the presence of their teachers and peers in the classroom. Pupils who were exposed to a traditional approach reported more mathematics anxiety than those who were exposed to the alternative approach, particularly with regard to the social, public aspects of doing mathematics.

However, the majority of pupils in this study reacted with either high or low anxiety to both aspects of doing mathematics.

While the two studies find commonality on the aspect of mathematics anxiety, it is also what makes the present study different from the previous one cited here inasmuch as the latter will not determine the effectiveness of a particular strategy in explaining children's mathematics anxiety.

Finally, the present study reviewed the research conducted by Acelajado (2003) which was designed to determine the effects of using technology,

specifically graphing calculators, on students' achievement in College Algebra, attitude, and anxiety in mathematics.

With the use of pretests and posttests in College Algebra, Mathematics Attitude Scale (MAS) and the Mathematics Anxiety Rating Scale (MARS), it revealed significant differences in the achievement, attitude, and anxiety of the different ability groups in favor of the high ability group. No significant difference existed between the levels of anxiety of the three groups of students, although the use of graphing calculators was found to reduce their anxiety scores.

Graphing calculators were most helpful in the study of functions and their graphs and systems of equations. Positive effects of using graphing calculators include students' improved achievement, reduced anxiety in mathematics, increased self-confidence, and active involvement of students in the learning process.

Both studies center on achievement in mathematics and the respondents' attitudes and anxiety in mathematics. Both studies want to find out whether attitudes and anxiety in mathematics influence the respondents' achievement in the same subject. Nevertheless, the present study will not go beyond describing the relationship between the respondents' mathematics achievement and their mathematics anxiety as well as their teachers' attitudes toward mathematics teaching.

Although the foregoing studies differ in several respects with the present study, they are nevertheless cited here as they touched on mathematics anxiety, attitudes toward the subject and mathematics achievement.

Lumpas (1996) conducted a correlational study on factors related to pupils' performance in the NEAT. She attempts to find out whether the identified pupil and teacher related variables influenced the NEAT performance of grade VI pupils of Mayorga, Leyte. The results of the analysis of the data gathered showed that generally the grade six pupils of the said district had moderately negative attitude towards schooling. With regard to reading level, their reading ability was only grade five.

When the pupil-related variables were correlated with NEAT performance, it was found to be highly significant with the dependent variables, while attitude towards schooling did not show a positive relationship. In the correlational analysis between teacher-related variables and pupils performance it was found out that educational attainment, teaching experience, age, and number of teachers were found to be positively and highly correlated towards teaching and academic learning time showed a negative relationship with NEAT performance.

The present study is highly related with Lumpas since both studies involved the use of correlational analysis and both emphasized on academic performance. However, they differed on the research environment, Lumpas'

study was conducted in Leyte Division while the present study was conducted in Samar Division.

Pacolor's study (1993) determined the teacher and learner - factors directly related with student achievement in Math and their extent of influence with the end of evolving a training design for Math teaching. He found that the knowledge in content of teachers, teaching Mathematics IV in terms of mean percentage score (MPS) was average. On the other hand, the weighted mean scholastic ratings of secondary students were, likewise, average. But in terms of MPS, the students fell under the low achievement level. Hence, the training of Math teachers in content, teaching strategies and assessment techniques was recommended. The present study is similar to the above mentioned study of Pacolor in that both studies considered student achievement in Math as one of the variable. However, it differed from Pacolor's as to the following: 1) This study involved elementary pupils, grade VI while his study involved secondary school students, 4th year; 2) The present study, the math achievement of grade VI pupils in Daram I District in the Standardized School Based Test is correlated with the identified teacher - and learner - factors while in Pacolor's, math achievement is correlated with teachers and learners factors but necessarily all the listed factors in this study.

The studies reviewed provided the researchers inputs to conduct the study.

Chapter 3

METHODOLOGY

This section provides the methods that were utilized in computing, analyzing and interpreting the data of the study. This includes the research design employed, instrumentation and validation of the instruments that were used, sampling procedure, data gathering procedure, as well as the statistical treatment of data.

Research Design

The study primarily is a descriptive-correlational research that attempted to find the relationship of pupils' mathematics achievement with pupils' and teachers' variates.

Correlation analysis was employed to determine whether there exists a relationship between the pupils' achievement in mathematics and each of the following: (a) pupil-related variates and (b) teacher-related variates.

More so, this tried to determine the extent by which pupils' mathematics anxiety is influenced by (a) past experiences in mathematics, (b) people's expectations to learn mathematics, (c) beliefs/myths about mathematics, (d) teaching methodologies, (e) class activities used to measure achievement in mathematics and (f) classroom environment.

Meanwhile, achievement in mathematics of pupil-respondents was based on standardized school-based achievement tests for Grade VI in mathematics.

Using a researcher-made questionnaire, achievement tests, Modified Mathematics Attitude Scale (MMAS), Modified Mathematics Teaching Attitude Scale (MMTAS), Modified Mathematics Anxiety Rating Scale (MMARS), and documentary analysis, the researcher collected the needed data from teachers and pupils of complete mono grade public elementary schools in Daram I District, Daram, Samar.

Finally, this research employed both descriptive as well as inferential statistical tools such as the frequency counts, percentage, mean, weighted mean, Pearson Product Moment Coefficient of Correlation (Pearson r) and Fisher's t-test.

Instrumentation

A researcher-made questionnaire, achievement tests, Modified Mathematics Attitude Scale (MMAS), Modified Mathematics Teaching Attitude Scale (MMTAS), Modified Mathematics Anxiety Rating Scale (MMARS) and documentary analysis served as the data gathering instruments of this study.

Questionnaire. As the primary data gathering instrument, one sets of questionnaire for pupil- as well as one set of questionnaire for teacher-respondents of the study, each used to gather data on teachers' and pupils' profile. It consisted of items regarding the personal characteristics of the teacher and pupil respondents such as their age and sex, civil status, average

family monthly income, parents' educational attainment, parents' occupation, grade level, grade level taught, among others.

Achievement Tests. This was used to provide data relative to the pupils' achievement in mathematics. This is a standardized school-based achievement test in mathematics VI given to the pupil-respondents. There was one set of achievement test in mathematics VI, it contains 50 items.

Modified Mathematics Attitude Scale (MMAS). This was a 20-item rating scale which was adopted from Acelajado (2003: 1) to get the pupil-respondents' attitudes toward mathematics. The responses of the respondents relative to the attitude statements were quantified as 5 for strongly agree (SA), 4 for agree (A), 3 for undecided (U), 2 for disagree (D), and 1 for strongly disagree (SD).

Modified Mathematics Teaching Attitude Scale (MMTAS). This was a 20-item rating scale which was adopted from Fennema and Sherman (1976: 75) which draws the teacher-respondents' attitudes toward mathematics teaching. The responses of the respondents relative to the attitude statements were quantified as 5 for strongly agree (SA), 4 for agree (A), 3 for undecided (U), 2 for disagree (D), and 1 for strongly disagree (SD).

Modified Mathematics Anxiety Rating Scale (MMARS). This was a 30-item rating scale which draw the pupil-respondents' level of mathematics anxiety and is adopted from Quilter and Harper (1988: 123).

The responses of the respondents relative to the extent by which some factors such as past experiences in mathematics, people's expectations about mathematics, beliefs/myths in mathematics, teaching methodologies, class activities used to measure achievement in mathematics, and classroom environment influence pupils' mathematics anxiety.

The pupils' mathematics anxiety was quantified using the Likert five-point scales, as follows: 5 for very highly influential (VHI), 4 for highly influential (HI), 3 for moderately influential (MI), 2 less influential (LI) and 1 for very less influential (VLI).

Documentary Analysis. This was resorted to get the data regarding the teachers' latest performance rating using the Revised Performance Appraisal System for Teachers (RPAST). In addition, this was also used to secure the data on the pupils' final grade in Mathematics V using their permanent records.

Validation of the Instrument

Since the achievement test is standard tests, it was subjected to content validation by giving the copies to the research adviser and three other experts in the fields of Mathematics, Research and Psychology.

Nevertheless, the questionnaire as well as the Modified Mathematics Teaching Attitude Scale (MMTAS), Modified Mathematics Anxiety Rating Scale (MMARS), and Modified Mathematics Attitude Scale (MMAS) were validated using the test-retest method.

It was validated in the following manner: (a) a draft of the foregoing instruments were given to the research adviser and three other experts in the fields of Mathematics, Research and Psychology, (b) after their comments and suggestions have been incorporated, they were finalized and printed, and (c) it was piloted among teachers and pupils in Daram I District Daram, Samar not the respondents of this study. After its pilot testing, the correlation coefficient between the first and second administration of the questionnaire was computed. The results of the computations were as follows: .86, .89, .87 and .86 respectively for the Modified Mathematics Teaching Attitude Scale (MMTAS), Modified Mathematics Anxiety Rating Scale (MMARS), Modified Mathematics Attitude Scale (MMAS), and the Questionnaire. Since, the result of the obtained r is high, then, the instruments were both reliable and valid.

Sampling Procedure

Daram I District has ten clusters or ten complete elementary schools. The four clusters namely, San Roque Elementary School, Pundang Elementary School, Buenavista Elementary School and Valles Elementary School, the teachers of the four schools are handling combination class. And the six complete schools are the so called the big schools namely, Astorga Elementary School, Baclayan Eementary School, Bagacay Elementary School, Daram I Central Elementary School, Parasan Elementary School and Rizal Elementary School. The

teachers of the big schools are teaching one, two and three grade levels but in Mathematics.

The respondents of the study will be the teachers in Grade Six teaching Mathematics VI of the big schools and their pupils of the public elementary schools in Daram I District, Daram, Samar. The research employed total enumeration sampling. All the mathematics teachers and pupils in Grade VI of the six big schools namely, Astorga Elem. School, Bagacay Elem. School, Baclayan Elem. School, Central Elem. School, Parasan Elem. School and Rizal Elem. School, were included as sample. The selection of the respondents is presented in Table 1.

Table 1

Elementary Schools in Daram I District of the Sample Respondents

Name of School	Population	Sample
Astorga Elem. School	66	63
Baclayan Elem. School	60	58
Bagacay Elem. School	37	36
Central Elem. School	105	100
Parasan Elem. School	49	47
Rizal Elem. School	70	64
Total	**387**	**368**

The whole population consisting of 387 pupils and six mathematics teachers (one per school) was the target respondents of the study. The researcher opted for total enumeration for the pupils and teachers but during the test administration, the researcher was able to administer only to 368 pupils and six math teachers. There were pupils who have dropped last January 2008 from

school, which appears in the roster last December 2007 which account for the difference in the number of the population and the sample.

Data Gathering Procedure

The gathering of the needed data of the study started with the submission of a letter requesting approval to conduct the study in Daram I District, Daram, Samar, from the Division Superintendent of the Department of Education (DepEd), Division Office, Catbalogan City. Upon his approval, another letter seeking permission to conduct the research in the different public elementary schools in Daram I District was given to the district supervisor of the said district.

Upon the district supervisor approval of the conduct of said study, the researcher gave the letters to the heads/teachers-in-charge/principals of the different public elementary schools in Daram in order to gather the needed data.

Securing the approval, the researcher administered the questionnaire and achievement test in mathematics simultaneously to the pupil-respondents. It is also during this time that the questionnaire for the teacher-respondents was administered. Before tallying the needed data, the researcher secured some pertinent documents such as the Revised Performance Appraisal System for Teachers (RPAST) and pupils' permanent records and report card for the determination of the latest performance rating of teachers and pupils' final grade in Mathematics V, respectively.

The administration of the questionnaire of the study was done personally to ensure 100 percent retrieval. The researcher supplies interview to ensure validity of the responses given by the respondents and to clarify doubts or vague answers.

Statistical Treatment of Data

To give quantitative analyses to the study, the researcher utilized both descriptive as well as inferential statistical tools such as (a) frequency count, (b) percentage, (c) mean, (d) weighted mean, (e) Pearson Product Moment Coefficient of Correlation (Pearson r), and (g) Fisher's t-test.

Frequency Count. This was used in reporting the number of pupil- as well as teacher-respondents of the same age, sex, civil status, average family monthly income and others.

Percentage. This was used in the analysis and interpretation of data on sex, age, civil status, average family monthly income and others.

Mean. This statistical measure was used to determine the quantitative characteristics or profile of the respondents like age, teaching experience, average family monthly income.

Weighted Mean. This was used to express the collective perceptions of each group of respondents as to the attitudes toward mathematics, and level of mathematics anxiety of pupil-respondents of the study. In interpreting the weighted means, the following was used:

4.51-5.00 - Very Highly Influential (VHI) /Strongly Agree (SA)

3.51-4.50 - Highly Influential (HI)/Agree (A)

2.51-3.50 - Moderately Influential (MI)/Undecided (U)

1.51-2.50 - Less Influential (LI)/Disagree (D)

1.00-1.50 - Very Less Influential (VLI)/Strongly Disagree (SD)

Pearson r. To determine the relationship between (a) pupil-respondents' level of mathematics achievement and teachers-related variates and (b) pupil-respondents' level of mathematics achievement and pupils' personal characteristics, the Pearson Product Moment Correlation Coefficient (Pearson r) was used.

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2-(\Sigma x)^2]\,[N\Sigma y^2-(\Sigma y)^2]}}$$

where:

r = the computed statistical value

x = the independent variable (factors)

y = the predicted variable

N = number of cases

Σ = the summation notation

Fisher's t-test. To test for the significance of the coefficient of correlation between a set of paired variables, the Fisher's t-test (Walpole, 1982:383) formula was used as follows:

$$t = r \sqrt{\frac{N-2}{1-r^2}}$$

The following rules provided a guide for interpreting the obtained correlation in this study:

Coefficient	Relationship
± .00 to ± .20	Indifferent or Negligible
± .20 to ± .40	Low Correlation Present
± .40 to ± .70	Moderate Relationship
± .70 to ± 1.00	High Correlation

Moreover, the null hypothesis was tested at level of significance set at .05 (two tailed).

Chapter 4

PRESENTATION, ANALYSIS AN D INTERPRETATION OF DATA

This chapter presents the data gathered, the analysis undertaken as well as the interpretation made. Included in this section are the following: 1) profile of the respondents-teachers and pupils, 2) level of academic achievement of the pupil- respondents in Mathematics on the standardized school based test, 3) relationship between level of achievement of the pupils in mathematics and teacher-related and pupils –related variates and 4) implications for mathematics teaching derived from the study.

Profile of the Teacher-Respondents

Table 2 to Table 4 discussed the profile of the teacher-respondents. Table 2 presents the profile of the grade VI teacher-respondents coming from the six chosen complete elementary schools with mono grade classes in Daram I District in terms of their age and sex, civil status, average monthly family income, educational attainment, and grade level taught. Table 3 presents the teaching load, teaching assignment, relevant trainings and seminars attended, latest performance rating of the teacher-respondents, and Table 4 presents the attitude towards Mathematics teaching of the teacher-respondents.

Age and sex. Table 2 presents the age and sex of the teacher-respondents. As seen in the table, the oldest teacher –respondent is 49 years old while the youngest is 25 years old. The majority of the Mathematics teacher-respondents

Table 2

Age, Sex, Civil Status, Average Family Monthly Income, Educational Attainment and Grade Level Taught

Resp.	Age (in years)	Sex	Civil Status	Average Monthly Income (in pesos)	Educational Attainment	Grade Level Taught
A	32	M	M	10,744.00	MA/MS/M units	6
B	34	M	M	10,939.00	MA/MS/M units	6
C	29	F	S	9,539.00	BEEd/BSEd	4, 5 & 6
D	49	F	M	10,422.00	MA/MS/M CAR	6
E	25	F	M	10,939.00	MA/MS/M Units	4 & 6
F	38	F	M	10,744.00	BEEd/BSEd	6
Max	**49**	**-**	**-**	**10,939.00**	**MA/MS/M with CAR**	**6**
Min	**25**	**-**	**-**	**9,539.00**	**BEEd/BSEd**	**6**
Total	**20s=2 30s=3 40s=1**	**F=5 M=1**	**S=1 M=5**	**9T =1 10T=5**	**BEED/BSEd=2 w/ MA units =3 MA CAR = 1**	**6 = 6 5 = 1 4 = 2**
Mean	**34.50**	**-**	**-**	**10,554.00**	**-**	**-**
SD	**8.36**	**-**	**-**	**532.22**	**-**	**-**

were in their 30s. Moreover, the distributions of their ages are as follows: two teachers are in their 20s, one in their 40s, and three in their 30s. The mean age was pegged at 34.50 years old which shows that the teachers were still young. The SD obtained was 8.36 showing that the ages of the teachers were slightly dispersed from the mean age.

Of the six Mathematics teacher-respondents, four of them were females while two of them were males. This shows that the grade VI Mathematics teachers in Daram I District were dominated by females.

Civil status. The table shows that as to the civil status of the teacher-respondents, majority of them were married (5 or 83.33 percent). One teacher was single. The data shows that majority of the Grade VI Mathematics teachers in Daram I District were married. This must be because the majority of them were in their 30s they had established their families.

Average monthly family income. As to the average monthly family income of the respondents, the same table reveals that the lowest income of the teacher-respondents was P9,539.00 and the highest income was P10,939.00. The mean income was pegged at P10,554.00 which shows that majority of the teacher-respondents were living below the poverty threshold set by NEDA in 2005 which is P15,866.00 for a family a five members in Region VIII (NCSO Report, January 25, 2005). The data implies that elementary teachers were low income.

Educational attainment. The table also shows the educational attainment of the teacher-respondents. As seen in the table, the majority of the teacher-respondents had earned units in MA/MS/MAEd or other graduate degree program, and one had completed the academic requirements or still lacked the thesis/paper to have the degree. There were two teachers who were BEEd/BSEd graduates or they have not pursed higher studies (2 or 33.33 percent). The table implies that the teachers in Daram I District were not motivated to take advanced

studies, they were not new to teaching, not one of them has finished a master's degree.

Grade level taught. Relative to grade level taught of the teacher-respondents, the table reveals that the teachers were all teaching Grade VI pupils. Some of them were teaching also pupils in the lower years, such as Grade IV, and Grade V. This implies that these teachers were experienced teachers in teaching elementary pupils and they must have taught in the lower years before they were assigned to teach grade VI pupils their Mathematics subject.

Teaching load. Relative to teaching load of the teacher-respondents, the table reveals that four teachers had 6 teaching loads and the other two teachers

Table 3

Teaching Load, Teaching Experience, Relevant Training/Seminars Attended, and Latest Performance Rating

Resp.	Teaching Load	Teaching Experience	Trainings/ Seminars	Latest Performance Rating
A	6	7	INSET Training Seminar in English, Math, Science, etc.	VS
B	6	2	INSET Training Seminar in English, Math, Science, etc.	VS
C	6	2	INSET Training Seminar in English, Math, Science, etc.	VS
D	7	26	INSET Training Seminar in English, Math, Science, etc.	VS
E	7	1	None	VS
F	6	2	INSET Training Seminar in English, Math, Science, etc.	VS
Max	**7**	**26**	-	-
Min	**6**	**1**	-	-

Resp.	Teaching Load	Teaching Experience	Trainings/ Seminars	Latest Performance Rating
Total	7=2 6=4	26= 1 7 = 1 2 = 3 1 = 1	INSET Training Seminar in English, Math, Science, etc. = 6	VS = 6
Mean	6	-	-	-
SD	8.36	-	-	-

have 7 teaching loads. The mean of the group in terms of number of teaching load is 6, which shows that majority of them have regular teaching load. This data also implies that the teacher-respondents were teaching other subjects aside from Grade VI Mathematics.

Teaching experience. As to the teaching experience of the teachers, the table shows that one of the teacher-respondents had the most number of years in teaching experience (has taught for 26 years) and the teacher who was new to teaching has taught for one year. One teacher-respondent has a teaching experience of seven years, while the majority has two years of teaching experience. The data implies that the majority of the Math teacher-respondents were new to Mathematics teaching since the majority of them had two years of teaching experience.

Relevant seminars/training attended. Table 3 presents the relevant seminars and training attended by the respondents. As reflected in the table, the six teachers attended the same seminars/training relevant to Mathematics teaching in 2007. The data implies that the elementary Mathematics teachers should be made to attend seminars and trainings in Mathematics teaching in the

elementary level to develop their content knowledge as well as pedagogues in Mathematics teaching.

Latest performance rating. As to the latest performance rating of the teachers, the table shows the respondents have "very satisfactory" performance. The data implies that the teacher-respondents were performing their functions, as Math teachers as rated by their supervisors.

Attitude towards mathematics teaching. Table 3 shows the respondents' attitude towards mathematics teaching. As seen in the table, the respondents rated 4 out of the 20 statement- indicators for attitude towards mathematics teaching with "strongly agree" which means that the respondents have very highly favorable attitudes towards mathematics teaching, 15 statements were rated "agree" by the respondents or having a highly favorable attitude, and one was rated "undecided" which meant that they have moderately favorable attitude.

The four attitude statements which obtained weighted mean rating of 4.67 each or that the respondents strongly agree were as follows: 1) I feel that it is my role to make my pupils realize that they can do well in math, 2) It is important for me as a teacher to trust my pupils that they can do well in math, 3) Teaching mathematics is like studying, and 4) I believe I still would want to be a mathematics teacher given the chance to live life all over again.

On the other hand, the statement, which was rated as "undecided" which obtained a mean rating of 3.17 is "A career in mathematics is financially

rewarding". The grand mean obtained for the attitude of the teachers towards math teaching is 4.37 interpreted as "agree" or highly favorable attitude towards mathematics teaching.

Table 8

Teacher-Respondents Attitude towards Mathematics Teaching

Attitude Indicators	Responses					Total	Weighted Mean	Interpretation
	5	4	3	2	1			
1. Teaching mathematics is a good career choice.	1	4	1			6	4.00	A
2. A career in mathematics is financially rewarding.		2	3	1		6	3.17	U
3. Mathematics teaching is interesting.	4	1	1			6	4.50	A
4. Most pupils understand what I teach in class because they can feel that I know my lesson very well.	2	3		1		6	4.00	A
5. I like teaching mathematics to my pupils.	4	1	1			6	4.50	A
6. I believe that mathematics is a useful tool in society's development.	4	1	1			6	4.50	A
7. Teaching mathematics allows me to enhance my professional background.	4	1	1			6	4.50	A
8. Being in the mathematics profession requires a great deal of discipline.	3	2	1			6	4.33	A
9. Mathematics applies to all aspects of my life as teacher.	3	2	1			6	4.33	A
10. Teaching mathematics includes being interested in my pupils' progress in math.	3	3				6	4.50	A
11. Mathematics encourages me to have faith in my pupils' ability to learn the subject.	3	3				6	4.50	A
12. I allow my pupils to talk to me about what they think and feel towards mathematics.	3	3				6	4.50	A
13. When I see mathematically gifted pupils I encourage them.	4		2			6	4.33	A

continuation

Attitude Indicators	Responses					Total	Weighted Mean	Interpr-tation
	5	4	3	2	1			
14. Teaching mathematics is a good career choice.	1	4	1			6	4.00	A
15. A career in mathematics is financially rewarding.		2	3	1		6	3.17	U
16. Mathematics teaching is interesting.	4	1	1			6	4.50	A
17. Most pupils understand what I teach in class because they can feel that I know my lesson very well.	2	3		1		6	4.00	A
18. I like teaching mathematics to my pupils.	4	1	1			6	4.50	A
19. I believe that mathematics is a useful tool in society's development.	4	1	1			6	4.50	A
20. Teaching mathematics allows me to enhance my professional background.	4	1	1			6	4.50	A
21. Being in the mathematics profession requires a great deal of discipline.	3	2	1			6	4.33	A
22. Mathematics applies to all aspects of my life as teacher.	3	2	1			6	4.33	A
23. Teaching mathematics includes being interested in my pupils' progress in math.	3	3				6	4.50	A
24. Mathematics encourages me to have faith in my pupils' ability to learn the subject.	3	3				6	4.50	A
25. I allow my pupils to talk to me about what they think and feel towards mathematics.	3	3				6	4.50	A
26. When I see mathematically gifted pupils I encourage them to pursue a career in math.	4		2			6	4.33	A
27. I feel that it is my role to make my pupils realize that they can do well in math.	4	2				6	4.67	SA
28. It is important for me as a teacher to trust my pupils that they can do well in math.	4	2				6	4.67	SA
29. Teaching mathematics is like studying.	4	2				6	4.67	SA

Attitude Indicators	Responses					Total	Weighted Mean	Interpr-tation
	5	4	3	2	1			
30. I believe I still would want to be a mathematics teacher given the chance to live life all over again.	4	2				6	4.67	SA
31. I make my pupils realize that it is important to enjoy mathematics..	3	2	1			6	4.33	A
32. I will use teaching as an instrument to promote math as an enjoyable subject.	3	3				6	4.50	A
33. I feel a sense of security when teaching math.	1	5				6	4.17	A
Grand Total	-	-	-	-	-	-	**87.34**	
Grand Mean	-	-	-	-	-	-	**4.37**	**A**

Legend:

4.51 - 5.00 - Strongly Agree (SA)/Very Highly Favorable Attitude
3.51 - 4.50 -Agree (A)/Highly Favorable Attitude
2.51 - 3.50 -Undecided (U)/Moderately Favorable Attitude
1.51 - 2.50 -Disagree (D)/Less Favorable Attitude
1.00 - 1.50 -Strongly Disagree (SD)/Very Less Favorable Attitude

Profile of the Pupil-Respondents

The profile of the pupil-respondents included their age and sex, average family monthly income, grade level, parents' educational attainment, parents' occupation, final grade in mathematics in the previous year (Grade V Math grade), attitude towards mathematics, and level of math anxiety.

Age and sex. Table 4 presents the age and sex of the pupil-respondents. As seen in the table, the youngest grade VI pupil-respondents were 11 years old and the oldest is 17 years old. The table shows that the majority of the respondents were 12 years old.

There were 214 or 58.15 percent female pupil respondents and 154 or 41.85 percent male pupil-respondents. The table shows that the grade VI pupil-respondents in this study were dominated by females.

Table 4

Age and Sex of the Pupil-Respondents

Age	Boys		Girls	
	Frequency	Percent	Frequency	Percent
17	4	1.09	2	0.54
16	10	2.72	14	3.80
15	14	3.80	25	6.79
14	22	5.98	48	13.04
13	32	8.70	50	13.59
12	50	13.59	49	13.32
11	22	5.98	26	7.07
Total	**154**	**41.85**	**214**	**58.15**
Mean	**13.01**	**-**	**13.22**	**-**
SD	**1.56**	**-**	**1.45**	**-**

Average family monthly income. As to the average family monthly income, Table 5 reveals that the lowest income was below P5,000.00 and the highest income was P40000.00 and above. The mean income was pegged at P6413.04 which showed that majority of the pupil-respondents were living below the poverty threshold set by NEDA in 2005 which was P15,866.00 for a family a five members (NCSO Report, January 25, 2005). The data implies that majority of the families of the grade VI elementary pupils in Daram I District are low income.

The SD obtained for income was P 393.43 which indicated that there were variations in the income of the respondents from the mean income.

Table 5

Pupil-Respondents' Average Family Monthly Income

Average Monthly Family Income (in pesos)	Frequency	Percentage
Less than P 5000.00	215	58.42
P 5000 - P 9999.00	95	25.82
P10000 - P14999.00	27	7.34
P15000 - P19999.00	12	3.26
P20000 - P24999.00	7	1.90
P25000 - P29999.00	4	1.09
P30000 - P34999.00	3	0.82
P35000 - P39999.00	3	0.82
P40000 - and above	2	0.54
Total	**368**	**100.00**
Mean	**P 6413.04**	**-**
SD	**P 393.43**	**-**

Grade level. As to the grade level, the pupil respondents of the study were all Grade VI pupils from complete mono grade elementary schools in Daram I District.

Educational attainment of parents. Table 8 shows the educational attainment of the parent-respondents. As seen in the table, for the parent-mothers majority of them, 92 or 25.00 percent were High school graduate. 86 or 23.37 percent were elementary graduate, 80 or 21.74 percent were high school level, 63 or 17.12 percent were elementary level, 28 or 7.21 were college level, 18 or 4.89 percent were college graduate, and one is a graduate and post graduate (masteral graduate). On the whole, the majority of the mothers reached at least high school.

For the parent-fathers educational attainment, the same table reveals that 121 or 32.88 percent of them reached elementary level, 86 or 23.37 percent were high school level, 78 or 21.20 percent were elementary graduates. 45 or 12.23

Table 6

Parent-Respondents' Educational Attainment

Educational Attainment	Mother		Father	
	Frequency	Percentage	Frequency	Percentage
Elementary Level	63	17.12	121	32.88
Elementary Graduate	86	23.37	78	21.20
High School Level	80	21.74	86	23.37
High School Graduate	92	25.00	45	12.23
College Level	28	7.61	23	6.25
College Graduate	18	4.89	14	3.80
Graduate & Post Graduate	1	0.27	1	0.27
Total	**368**	**100.00**	**368**	**100.00**

percent were high school graduates, 23 or 6.25 percent were college level, 14 or 3.80 were college graduate and one or 0.27 percent was graduate and post graduate. On the whole, the majority of the parent-fathers were at least elementary graduates.

Occupation of parents. Relative to the occupation of parents, Table 7 reveals that of the 368 mothers the majority of them were housewife (196 or 53.26 percent). This is followed by 67 mothers or 18.21 percent who were farmers; 30 or 8.15 percent are government employees, 23 or 6.25 percent were vendors, 19 or 5.16 percent were sari-sari store owners, 14 or 3.80 percent were private employees, nine or 2.45 percent were teachers, six or 1.63 percent are local government officials and four or 1.09 percent were practicing professionals.

The occupations of the respondents-fathers were distributed as follows: 100 or 27.17 percent are fishermen, 88 or 23.91 percent were farmers, 35 or 9.51.

Table 7

Pupil-Respondents Parents' Occupation

Occupation/Employment	Mother		Father	
	Frequency	Percentage	Frequency	Percentage
Housewife	196	53.26	-	-
Local Government Officials	6	1.63	18	4.89
Fisherman	-	-	100	27.17
Farmer	67	18.21	88	23.91
Vendor (Buy & Sell)	23	6.25	20	5.43
Sari-sari Store Owner	19	5.16	8	2.17
Government Employee	30	8.15	14	3.80
Private Employee	14	3.80	31	8.42
Teacher	9	2.45	4	1.09
Practice of Profession	4	1.09	3	0.82
Laborer	-	-	30	8.15
Driver	-	-	17	4.62
Construction Worker	-	-	35	9.51
Total	**368**	**100.00**	**368**	**100.00**

percent were construction workers, 31 or 8.42 percent were private employees, 30 or 8.15 percent were laborers, 20 or 5.43 percent were vendor, 18 or 4.89 percent were local government officials, 17 or 4.62 percent were drivers, eight or 2.17 percent were sari-sari store owners, four or 1.09 percent were teachers, and three or 0.82 percent were practicing professionals. On the whole, the majority of the parents (both mother and father) were engaged in occupations which are not paying well.

Final grade in Mathematics in the previous year (Grade V Math). Table 8 presents the Mathematics V final grade of the pupil-respondents. As depicted

in the table, the highest grade is 92 and the lowest grade is 75. Eight respondents obtain a grade of 92 and 39 respondents have obtained a 75 rating

Table 5

Distribution of the Student-Respondents as to Grades in Mathematics

Grades	Frequency	Percentage	Interpretation
75	39	10.60	Fair
76	19	5.16	Fair
77	21	5.71	Fair
78	22	5.98	Fair
79	24	6.52	Fair
80	68	18.48	Good
81	31	8.42	Good
82	29	7.88	Good
83	14	3.80	Good
84	29	7.88	Good
85	32	8.70	Very Good
86	3	0.82	Very Good
87	5	1.36	Very Good
88	7	1.90	Very Good
89	6	1.63	Very Good
90	7	1.90	Outstanding
91	4	1.09	Outstanding
92	8	2.17	Outstanding
Total	**45**	**100.00**	-
LG	**75**	-	-
HG	**92**	-	-
Mean	**81.03**	-	**Good**
SD	**4.16**	-	-

Legend: 90 - 95 Outstanding (O)
85 - 89 Very Good (VG)
80 - 84 Good (G)
75 - 79 Fair (F)
70 - 74 Poor (P)

for Math V (the lowest passing grade). The table reveals that the grades of the respondents is concentrated from 75-85 (this are the grades with higher

frequency in the table) which have ratings from fair to good. The grade with the highest frequency is 80 with 68 or 18.48 percent of the pupil s obtained this grade in Math V. The mean grade is 81.03 interpreted as good, and the SD is 4.16 showing a slight variation of their grades from the mean grade.

Attitude towards mathematics. The pupil-respondents' attitude towards mathematics is presented in Table 9.

As to attitude towards mathematics of the pupil-respondents, *a*s gleaned from the table, no attitude statements were rated as strongly agree by the pupil-respondents which indicated a very highly favorable attitude, 17 attitude indicators obtained mean ratings from 3.51-4.50 interpreted as "agree" or highly favorable attitude towards mathematics, and eight attitude indicator was rated "undecided" or moderately favorable attitude.

The attitude indicators which obtained the highest mean rating of 4.17 interpreted as "agree" were as follows; 1) Math is creative, 2) Math is fun much is learned from a wrong answer as much a right one, 3) Learning math to me is easy, 4) I like math because it uses my common sense.

The attitude indicators which were rated as undecided meaning that the pupils have moderately favorable attitude with the obtained mean rating are as follows: 1) It is okay for me if sometimes I am stuck on a math problem - 3.44, 2) I like math for the symbols and numbers used have specific meaning-

Table 9

Pupil-Respondents' Attitude towards Mathematics

Attitude towards Mathematics	Mean	Interpret
1. Mathematics is creative.	4.17	A
2. Math problems make my brain works.	4.14	A
3. I like math because my math teachers appear to have domain of some secret knowledge.	3.67	A
4. I am relaxed in my math lessons.	3.85	A
5. The rightness or wrongness of my mathematics work is often obvious to me.	3.85	A
6. I find people who can do math clever.	4.06	A
7. Math is fun much is learned from a wrong answer as from a right one.	4.17	A
8. I find math not threatening at all.	4.14	A
9. Learning math to me is easy.	4.17	A
10. I enjoy using guesswork in solving math problems.	3.88	A
11. Math is alright especially if it is expressed in words not in symbols.	3.88	A
12. I like math there is no half right answers.	3.88	A
13. I like math because it is too abstract.	3.37	U
14. In math negative numbers have different meaning and symbolism from positive numbers.	3.88	A
15. It is okay for me if sometimes I am stuck on a math problem.	3.44	U
16. I like Math because it uses my common sense.	4.17	A
17. I like math for the symbols and numbers used have specific meaning.	3.44	U
18. I find math symbols useful.	3.44	U
19. I am not ashamed if I can't do a piece of math.	3.44	U
20. I like the letter "x" used to represents the unknown in math it is full of mystery.	4.12	A
21. I find beauty in the process/algorithm for getting things done in Math.	3.67	A
22. I find math very interesting.	3.83	A
23. Math to me is like a sickness, I am lost without it.	3.39	U
24. I am anxious to learn math always.	3.44	U
25. Math releases tension and boredom.	3.44	U
Total	**94.93**	
Mean	**3.80**	**A**

Legend:
- 4.51-5.00 Strongly Agree (SA)/Very Favorable Attitude
- 3.51-4.50 Agree (A)/Favorable Attitude
- 2.51-3.50 Uncertain (U)/Neutral Attitude
- 1.51-2.50 Disagree (D)/Unfavorable Attitude
- 1.00-1.50 Strongly Disagree (SD)/Very Unfavorable Attitude

3.44, 3) I find math symbols useful - 3.44, 4) I am not ashamed if I can't do a piece of math-3.44, 5) I am anxious to learn math always-3.44, 6) Math releases tension and boredom-3.44, 7) math to me is like a sickness I am lost without it - 3.39, and 8) I like math because it is too abstract - 3.37.

The mean rating for the pupils- attitude toward math is 3.78 interpreted as agree or highly favorable attitude.

Level of Mathematics Anxiety. The pupils' math anxiety is considered as to: 1) past experiences of the pupils in mathematics, 2) anxiety because of some people's expectation of the pupils' to learn math, 3) anxiety caused by beliefs/myths about mathematics, 4) anxiety because of the teaching methodology used by the math teachers, 5) anxiety caused by class activities to measure math achievement employed by the teacher, and 6) anxiety because of the math classroom environment.

As to past experiences in mathematics, Table 10 reflects the mathematics anxiety of the pupil-respondent in mathematics. The weighted mean ratings of the five statements measuring their anxiety were 4.28, 4.20, 3.89, 3.88, and 3.69 interpreted as "very influential" or that the respondents are "highly anxious" when they are in their math classes because of past experiences in mathematics.

The math anxiety statement which was given the highest mean rating of 4.28 is the statement, "Being laughed at by classmates for every wrong answer to word problems or simple arithmetic operations during class recitation or board work". The statement which was rated the lowest mean rating under anxiety in

math because of past experiences in mathematics is "Parents, teachers and classmates criticized math computations". The obtained mean for their math anxiety caused by past experiences in mathematics is 3.99 interpreted as very influential or highly anxious.

Table 10

Pupils' Math Anxiety because of Past Experiences in Mathematics

Mathematics Anxiety Statements	Mean	Inter-pretation
1. Being laughed at by classmates for every wrong answer to word problems or simple arithmetic operations during class recitation or board work.	4.28	HVI
2. Failing to get the right answer after several attempts.	4.20	HI
3. Parents, teachers and classmates criticized math computations.	3.69	HI
4. Being made to practice by teachers/parents math computations every vacant hour, after class, or before playtime with exercises written in flashcards.	3.88	HI
5. Expected by teachers/parents to study and obtain high scores during examination in class or during tutorials with parents or with a tutor at home.	3.89	HI
Total	**19.94**	**-**
Mean	**3.99**	**HI**

Legend: 4.51-5.00 Very Highly Influential (VHI)/Very Highly Anxious
3.51-4.50 Highly Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51-2.51 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

As to anxiety because of people's expectation to learn math, the five indicators of math anxiety is rated as very influential by the pupil-respondents. The highest mean rating is 4.20 for the statement, "Teachers emphasizing of getting the right procedure in getting the right answer". Brothers and sisters

have excelled in math while still in school - 4.05, Parents are good in mathematics 4.04, Pupils are pressured by classmates to achieve higher scores in quizzes, recitation, assignments and projects in math - 4.00 and Increasing demand from society for pupils to learn math for their future - 3.86. The mean obtained for their anxiety cause by people's expectation is 4.05 interpreted as very influential or that the pupils became highly anxious in math because of some people's expectation.

Table 11

Pupils' Math Anxiety because Some People Expected them to Learn Math

Mathematics Anxiety Statements	Mean	Interpret
6. Parents expect child to be good in mathematics.	4.04	HI
7. Teachers expect pupils to get the right answer using the right procedure.	4.20	HI
8. Pupil is pressured by classmates to achieve high scores in quizzes, recitation, assignment and project in math.	4.00	HI
9. Pupils have brothers and sisters who excelled in math during their elementary grades.	4.15	HI
10. Society demands the pupils to learn math.	3.86	HI
Total	**20.25**	-
Mean	**4.05**	**HI**

Legend: 4.51-5.00 Very Highly Influential (VHI)/Very Highly Anxious
3.51-4.50 Highly Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51-2.50 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

As to beliefs/myths about mathematics, the respondents rated three statements indicators as very influential and two statement indicators as moderately influential. The three statements which were rated as very influential

obtained weighted mean of 3.86 each are: 1) Pupil is expected to be good in math since every one is born with an aptitude for math, 2) Gender bias that boys are better in math than girls, and 3) Pupils who are older are wiser and those who are wise are good in math. The statements which were rated moderately influential or that the respondents were moderately anxious are as follows: 1)

Table 12

Pupils' Math Anxiety because Beliefs/Myths about Mathematics

Mathematics Anxiety Statements	Mean	Interpre-tation
11. Pupil is expected to be good in math since every one is born with an aptitude for math.	3.86	HI
12. Gender bias that boys are better in math than girls.	3.86	HI
13. Pupils are expected to be good in Math if he/she is good in computations.	3.35	MI
14. Pupils who are older are wiser and those who are wise are good in math.	3.86	HI
15. Pupils are expected to have correct answers to a math problem since there are many ways to get the right answer in math.	3.46	HI
Total	**18.39**	**-**
Mean	**3.68**	**HI**

Legend:
4.51-5.00 Very High Influential (VHI)/Very Highly Anxious
3.51-4.50 High Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51-2.50 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

The mean obtained is 3.68 which is interpreted as moderately influential or that pupils are moderately anxious in their math classes because of these beliefs or myths.

As to anxiety in math caused by the teaching methodologies used by the math teachers, two indicators were rated as very influential while three

indicators were rated as moderately influential. The two indicators which were rated as very influential or that the respondents are highly anxious included; "Teachers call pupils who are not attentive to answer questions during the lecture-discussion on explaining important mathematical concepts", and "Teachers focusing attention to those who are talented and those who are poor in math and seems to enjoy it". These statements obtained weighted mean rating of 4.04 and 4.10 respectively.

Table 13

Pupils' Math Anxiety because of Teaching Methodologies Used by Teachers

Mathematics Anxiety Statements	Mean	Inter-pretation
16. Teachers call pupils who are not attentive to answer questions during the lecture-discussion on explaining important mathematical concepts.	4.04	M I
17. Teachers calling pupils to recite while discussing math lessons.	3.42	M I
18. Teachers after providing several examples after discussing the concepts call pupils to solve math problems/exercise on the board to apply math concepts.	3.42	M I
19. Teachers during informal discussion ask pupils to give comments regarding what they know about the lesson.	3.42	MI
20. Teachers focusing attention to those who are talented and those who are poor in math and enjoy it.	4.10	HI
Total	**18.40**	-
Mean	**3.68**	**HI**

Legend: 4.51-5.00 Very High Influential (VHI)/Very Highly Anxious
3.51-4.50 High Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51– 2.50 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

The three statements which were rated as moderately influential have weighted mean rating of 3.42 each were as follows: 1) Teachers calling pupils to

recite while discussing math lessons, 2) Teachers after providing several examples after discussing the concepts call pupils to solve math problems/exercise on the board to apply math concepts, and 3) Teachers during informal discussion ask pupils to give comments regarding what they know about the lesson. The mean for their math anxiety due to the teaching methodologies used by the math teacher is 3.68 interpreted as moderately influential or that the pupils are moderately anxious in their math classes because of the teaching methodologies used by teacher.

As to anxiety caused by activities to measure math achievement employed by teachers teaching mathematics, the five statement indicators of math anxiety were rated as: four are very influential and one as influential. The statements rated as very influential are as follows; Assignments/home works are given after every meeting in class, Periodic exercises after every lesson discussed in Math by the teacher, Quiz before starting the lesson as a review mechanism of the previous lesson, and Math projects about a particular unit of lesson. While the statement rated as moderate by influential is the statement, "Going on educational trips for practical application of mathematics". The mean obtained for the five statements which measures math anxiety is 3.61 interpreted as moderately influential or this meant that the class activities used to measure math achievement of the pupils which were the requirements of the math teachers causes the pupils to be highly anxious in their math class.

Table 14

Pupils' Math Anxiety Cause by Math Activities to Measure Pupils' Achievement

Mathematics Anxiety Statements	Mean	Inter-pretation
21. Periodic exercises after every lesson discussed in Math by the teacher.	3.71	HI
22. Assignments/home works are given after every meeting in class.	3.94	MI
23. Quiz before starting the lesson as a review mechanism of the previous lesson.	3.58	MI
24. Math projects about a particular unit of lesson.	3.54	
25. Going on educational trips for practical application of mathematics.	3.27	HI
Total	**18.04**	-
Mean	**3.61**	**HI**

Legend: 4.51-5.00 Very High Influential (VHI)/Very Highly Anxious
3.51-4.50 High Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51-2.50 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

As to classroom environment, the pupils rating to the five statements were distributed as follows; two statements indicators were rated as very influential or the pupils are highly anxious, these are, Math room has sufficient number of chairs and tables for every pupil so they can be comfortable with their math task, and Math class is well-decorated with artistic presentation of concepts in math such as graph, drawings, pictures and others. The three statements were rated as moderately influential which obtained the same weighted mean rating of 3.42 each are: 1) Math classroom is well-ventilated for math activities, 2) Math room

Table 15

Pupils' Math Anxiety Caused by the Classroom Environment

Mathematics Anxiety Statements	Mean	Inter-pretation
26. Math class is well-decorated with artistic presentation of concepts in math such as graph, drawings, pictures and others.	4.04	HI
27. Math classroom is well-ventilated for math activities.	3.42	MI
28. Math room is well-lighted for clearer vision of things such as mathematical formulate to be memorized and others.	3.42	MI
29. Math room is spacious and has a math corner for each pupils who are having a hard time understanding math.	3.42	MI
30. Math room has sufficient number of chairs and tables for every pupil so they can be comfortable with their math task.	4.10	HI
Total	**18.40**	-
Mean	**3.68**	**HI**

Legend: 4.51-5.00 Very Highly Influential (VHI)/Very Highly Anxious
3.51-4.50 Highly Influential (HI)/Highly Anxious
2.51-3.50 Moderate Influential (MI)/Moderately Anxious
1.51-2.50 Less Influential (LI)/Less Anxious
1.00-1.50 Not Influential (NI)/Not Anxious

is well-lighted for clearer vision of things such as mathematical formulate to be memorized and others, and 3) Math room is spacious and has a math corner for each pupils who are having a hard time understanding math.

The mean rating for the five statements pertaining to anxiety cause by the classroom environment is computed equal to 3.68 interpreted as highly influential or that the math classroom environment in which the pupils were exposed to causes the pupils to be highly anxious in their math classes.

Pupil-Respondents Mathematics Achievement in the Standardized School-based Test

Table 8 presents the math achievement of the pupil-respondents based on the standardize school based test of 50 item. The table shows that the highest score was 35 and the lowest score was 10. The majority of the respondents have scores of 13 to 23 which score is less than half of the items, which is 25 indicating that pupils have poor achievement in math. Also, only fifty plus pupils obtained a score from 26-35 as against approximately 300 pupils obtained scores from 25 down to 10. The table indicates that pupils have low level of achievement in mathematics based on the standardize school based test.

Dividing the items equally into 5, the scores of the respondents will range from very low achievement to high achievement with few students under very low achievement and high achievement and the concentration is on low achievement and moderate achievement. The table also shows that the ranges of their math scores is from 10 to 35 covers only ½ of the total number of items and from the highest or perfect score the difference is greater (15) as compared to the lowest and the supposed lowest (zero) which is only 10. Also, the frequency of scores in the upper end of the table (upper 5 in the score) is lower compared to the lower five scores at the bottom. This data implies that the pupils performance in mathematics based on the standardize school based test is low. The mean obtained is 20.74 which indicate low performance.

Table 16

Mathematics Achievement of the Pupil -Respondents (based on the Standardized School Based Test)

Grade	Frequency	Percentage
35	14	2.99
34	3	0.54
33	1	0.81
32	4	6.25
31	7	7.88
30	10	10.05
29	2	3.80
28	4	4.89
27	13	3.53
26	4	16.58
25	12	8.97
24	25	5.43
23	5	1.36
22	20	6.80
21	33	3.26
20	61	1.07
19	13	3.53
18	18	1.09
17	14	0.54
16	37	2.72
15	29	1.90
14	23	1.09
13	3	0.27
12	0	0
11	2	0.82
10	11	3.80
Total	**7633**	-
Mean	**20.74**	-
SD	**6.3633**	-

Legend: 41-50 Very High Achievement
31-40 High Achievement
21-30 Moderate Achievement
10-20 Low Achievement
0-10 Very Low Achievement

Relationships between Pupils' Level of Achievement in Math and the Variates

The relationships between the pupils' level of mathematics achievement and the teachers-related variates is presented in Table 17 while the relationships between the pupils' level of achievement in mathematics and the pupils' related variates is presented in Table 18.

Teacher-related variates. The relationship between the pupils' mathematics achievement and the teacher's variates is presented in Table 17. As seen the following teachers-related variates: age, civil status, average family monthly income, educational background, grade level taught, teaching experience and attitude toward math teaching were all found to be significantly related to the pupils' level of achievement in mathematics. The computed t-values (absolute value) for testing the significance of the correlation between the mentioned teacher-variates and pupils level of achievement is greater than 1.96 (which is the critical t-value). This lead to the rejection of the null hypothesis that states, "There is no significant relationship between the level of math achievement and teacher-related variates." This meant that the above mentioned pupils' variates have influence on level of math achievement of the pupils. Sex and teaching load is not significantly related to the mathematics achievement of the pupils, the obtained t-value is less than the critical t-value of 1.96 at df=366 level of significant set at .05 (two tailed).

On the other hand no correlation exist between level of math achievement of the pupils and the relevant trainings/seminar attended in math by the math VI teachers since one variable is constant (the relevant trainings or seminars

Table 17

Relationship between Teacher-related Variates and Pupils' Mathematics Achievement

Personal Variates	r_{xy}	Fishers t-value		Evaluation/ Decision
		Computed	Critical Df =4, a =.05	
Age	-0.1263	-2.44	1.96	S
Sex	0.0214	0.41	1.96	NS
Civil status	0.1571	3.04	1.96	S
Average Monthly Family Income	0.1354	2.61	1.96	S
Educational Attainment	0.1357	2.62	1.96	S
Grade Level Taught	0.1633	3.17		
Teaching Load	0.0336	0.64	1.96	NS
Teaching Experience	-0.1290	-2.49	1.96	S
Relevant Trainings & Seminars Attended				
Latest Performance Appraisal Rating				
Attitude towards Mathematics Teaching	0.1294	2.50	1.96	S

attended is the same for all 6 of them). Also, a no significant relationships existed between level of math achievement and teacher's performance rating because all of the six teachers have very satisfactory performance.

Pupil-related variates. Table 18 shows the computed r-value, the computed t-value, the critical t-value and the decision/evaluation regarding the hypothesis of the study based on data.

Table 18

Relationship between Pupils-related Variates and Pupils' Mathematics Achievement

Personal Variates	r_{xy}	Fishers t-value		Evaluation/ Decision
		Computed	Critical df =4, a =.05	
Age	0.1360	2.63	1.96	S
Sex	-0.0338	-0.65	1.96	NS
Average Monthly Family Income	0.0727	1.39	1.96	NS
Grade level				
Parents' Educational Attainment				
Father	0.1239	2.39	1.96	S
Mother	0.7595	22.33	1.96	S
Parents' Occupation				
Father	0.0865	1.66	1.96	S
Mother	0.0547	1.05	1.96	S
Grade V Math Grade (previous math grade)	0.4993	11.02	1.96	NS
Attitude towards Mathematics	0.0651	1.25	1.96	S
Level of Math Anxiety	0.0942	1.81	1.96	S

As seen in the table, three pupils-related variates were deemed significantly related to pupils' level of math achievement. These are age, parents' education and pupils' previous math grade (Math V grade).

The other pupils-related variates which are found not significantly related to the mathematics achievement of pupils are: sex, average family income, parents' occupation, attitude towards mathematics, and level of anxiety in

mathematics. No correlation was found between grade level of the pupils and mathematics achievement of the pupils since grade level is a constant.

Implications

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

1. A significant relationship between teachers' age and pupils' level of mathematics achievement implies that teachers assigned to teach Mathematics should be younger so that they can monitor the learning of the pupils and young teachers are more approachable in terms of the problems of the pupils with their math lessons because they have the patients of the young.

2. A significant relationship between civil status and level of achievement of the pupils in mathematics implies that married mathematics teachers understand better the mathematics problems/difficulties of the pupils having their own children themselves and are better equipped to discern math anxiety and difficulties.

3. A significant relationship between average family monthly income and level of achievement in mathematics of the pupils implies that there is a need to raise the salary of the teachers in the Department of Education so that they will be motivated to teach mathematics, and so that they will have extra money to be able to purchase instructional materials for mathematics classes.

4. A significant relationship between educational attainment and level of mathematics achievement of the pupils implies that the teachers should be

encourage to take advanced studies in Mathematics such as taking MAT in Mathematics so that their content knowledge as well as pedagogues will be enhanced.

5. A significant relationship between grade level taught and level of performance of the pupils in mathematics implies that as much as possible teachers should be assigned to single grade level and specific subject such as Math only so that he/she will have time to prepare for his/her mathematics lesson.

6. A significant but negative correlation between teaching experience and level of achievement of the pupils in mathematics implies that teachers who are more experienced in teaching mathematics should be constantly supervised because they become lax in their teaching whereas those who are new in the jobs should be encourage more to do better because they have the energy and drive of the young.

7. A significant relationship between the teachers' attitude towards math teaching and pupils' level of achievement in mathematics implies that there is a need to enhance the attitude towards math teaching of the teachers and supervision should be made by the supervisor to be able to improved their attitudes for better result.

8. A significant relationship between the pupils' level of achievement and age implies that the teachers in mathematics should give differentiated activities and exercises considering the ages of their pupils.

9. A significant relationship between the pupils' level of achievement and parents' educational attainment implies that the teachers in mathematics should tapped the help of the parents in improving the mathematics achievement of the pupils. The parents and the teachers should discuss problems of children in mathematics. Parents should help with homework and projects of the pupils to have a better bonding.

10. A significant relationship between the pupils' level of achievement and previous year mathematics grade of the pupils implies that the teachers can use this data as basis in giving differentiated homework, project, lesson, and activity of the pupils. Also, this can be an input in the choice of methods/strategies in math classes for better math performance.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the major findings, the conclusions that resulted as well as the recommendations made.

Summary of Findings

This following are the salient findings of the study.

1. The teacher-respondents of the study had a mean age of 34.50 years old majority of them female, married, had a mean income of P 10,554, majority have MA/MS/MAT units, with 6 loads (or have regular load), attended the same training and had very satisfactory performance and exhibit highly favorable attitude towards teaching mathematics with a mean rating of 4.37 interpreted as agree.

2. The pupil respondents of the study were majority 13 years old dominated by girls, have mean family monthly income of P 6413.04 and with mothers who are mostly high school level and fathers who are majority elementary graduates, with mothers who are majority housewife and father mostly fishermen and farmers. Their Grade V math grades had a mean of 81.94 which indicated a good performance in the subject, their attitude towards mathematics has a mean of 3.80 interpreted as agree or highly favorable attitude towards math. As to math anxiety with respect to past experience in mathemat5ics, the obtained mean rating is 3.99 which is interpreted as very

influential or highly anxious. As to anxiety because of people's expectation to learn math, the obtained mean is 4.05 interpreted as very influential or that the respondents are highly anxious. As to beliefs/myths about mathematics, the obtained mean rating is 3.68 interpreted as very influential or highly anxious due to teaching methodologies used, the obtained mean rating is 3.68 which meant that the pupils are highly anxious. As to classroom environment as caused of the math anxiety the obtained mean rating for the statement indicators is 3.68 interpreted as highly anxious.

3. The pupil-respondents level of achievement in mathematics had a mean rating of 20.74 interpreted as low achievement in mathematics.

4. The correlation between pupils' math achievement and teachers-related variates reveal that: 1) age of the teacher and level of math achievement of the pupils is significant, 2) civil status and level of math achievement of the pupils is significant, 3) Average family monthly income, educational attainment, grade level taught, attitude towards mathematics teaching are significantly related to the level of math achievement of the pupils. Sex and teaching load is not significantly related to the level of performance of the pupils in mathematics. No correlation was found between: 1) relevant training/seminars attended by the teachers and level of math achievement, and 2) latest performance rating and level of math achievement of the pupils.

5) The correlation of pupils-related variates and level of achievement in mathematics reveal that: age, parents' educational background (both mother and

father) and final grade in Math V (previous math) to be significant. No significant relationship was found between: 1) sex, 2) income, 3) parents occupation, 4) attitude toward math, and 5) level of math anxiety and the level of math achievement of the pupils.

Conclusions

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

1. The teacher-respondents of the study were typical teachers in the elementary grade level in Daram District in terms of age, sex, civil status, and others.

2. The pupil respondents of the study were typical Grade VI pupils of the district in terms of qualities such as age, sex, monthly income and others.

3. The pupil-respondents has a low level of achievement in mathematics

4. The teachers-related variates which is significantly related to the level of performance in mathematics are age, civil status, average family monthly income, educational attainment, grade level taught, and attitude towards mathematics teaching.

5. The pupils-related variates significantly related to the level of achievement in mathematics are age, parents' educational background (both mother and father) and final grade in Math V (previous math).

Recommendations

The following were the recommendations based on the findings and conclusions:

1. There is a need to encourage the teachers of Daram I District to finished their master's degree since majority of them were only BEED and have taken units in the graduate degree.

2. There is a need for the parents to be informed during the PTCA meetings the academic performance of their children in school and what they can contribute for the enhancement/improvement of their children studies in terms of supervision in Mathematics.

3. There is a need for the pupils of Daram I District to be constantly supervised in their studies by their teachers so that their performance in the Standardized District Achievement Test would be further enhanced or improved and supervision should be more focused on the content of the lesson. The parents and teachers should direct their supervision of pupils' studies to the development of the pupils' knowledge on the least learned skills in Mathematics.

4. There is a need for the school administrators to focus their supervision on academic instruction in Mathematics and observed classes frequently so that teachers will be motivated in their math classes.

5. Remedial instruction in Mathematics should be given to provide the necessary motivation in learning mathematics.

6. Teachers should use the right approach, methods and techniques that will fit the varying abilities and potentialities of their pupils. To do this, teachers must have a continuous training and retraining that will keep them abreast with the latest innovative techniques and strategies in Mathematics teaching. In this way, teachers can improve their way of instruction that will maximize the development of pupils, especially in Mathematics.

7. The teachers should have the insights on how to improve the teaching learning situations in Mathematics through a wise selection of objective, contents and activities. The institution must give attention to the low performance of the pupils in Mathematics and must help them.

8. A similar study should be conducted to verify the findings of this study.

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APPENDICES

APPENDIX A

Cover Letter of the Questionnaire for Teacher-Respondents

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan, Samar

February 12, 2008

Dear Respondents,

Greetings!

I am presently conducting a research entitled "Correlates of Mathematics Achievement of Grade VI Pupils in Daram I District ", in partial fulfillment of the requirements for the degree of Master of Arts in Teaching Mathematics (MAT-MATH).

In view of this, you are chosen to be one of the respondents of this study. Rest assured that your answers would be treated with utmost confidentiality.

Thank you very much for your cooperation. God Bless You!

Respectfully yours,

CLARIFEL D. ESTRADA
Researcher

APPENDIX B

Questionnaire for the Teacher-Respondents

TEACHER-RESPONDENTS' PERSONAL PROFILE PART

NAME _____
(Optional)

Age _____ Sex ( ) Female
( )

Civil Status ( ) Single
( ) Married
( ) Widowed
( ) Separated

Average Family Monthly Income (in pesos) _____

Educational Attainment
( ) College graduate
( ) With M.A. units
( ) M.A. CAR
( ) With Ph. D., Ed. D. units
( ) With Ph. D., Ed. D. CAR
( ) Ph.D., Ed. D. graduate

Grade Level Taught _____ Teaching Load _____

Teaching Experience (in years) _____

Relevant Trainings/Seminars Attended

Nature of the Seminar/ Training Attended	: Sponsoring Agency	: Inclusive Date
1.		
2.		
3.		
4.		
5.		

(NOTE: Please use a separate sheet of paper if the spaces provided are not enough to list all the relevant trainings/seminars you have attended.)

APPENDIX C

Modified Mathematics Teaching Attitude Scale (MMTAS)

DIRECTIONS: The following are statements that reflect your attitudes toward mathematics. Beside each of the statements presented below, please indicate your rating using the following scale.

5 - Very Highly Influential (VHI)
4 - Highly Influential (HI)
3 - Moderately Influential (MI)
2 - Less Influential (LI)
1 - Not Influential (NI)/Very Less Influential (VLI)

Indicators	Responses				
	VHI	HI	MI	LI	NI
1. Teaching mathematics is a good career choice.					
2. A career in mathematics is financially rewarding.					
3. Mathematics teaching is interesting.					
4. Most pupils understand what I teach in class because they can feel that I know my lessons very well.					
5. I like teaching mathematics to my pupils.					
6. I believe that mathematics is a useful tool in society's development.					
7. Teaching mathematics allows me to enhance my professional background.					
8. Being in the mathematics profession requires a great deal of discipline.					
9. Mathematics applies to all aspects of my life as teacher.					
10. Teaching math includes being interested in my pupils' progress in math.					
11. Mathematics encourages me to have faith in my pupils' ability to learn the subject.					
12. I allow my pupils to talk to me about what they think and feel towards mathematics.					
13. I see mathematically-gifted pupils that I encourage to pursue a career in math.					
14. I feel that it is my role to make my pupils					

realize that they can do well in math.					
15. It is important for me as a teacher to trust my pupils that they can do well in math.					
16. Teaching mathematics is like studying.					
17. I believe I still would want to be a mathematics teacher given the chance to live life all over again.					
18. I make my pupils realize that it is important to enjoy mathematics.					
19. I will use teaching as an instrument to promote math as an enjoyable subject.					
20. I feel a sense of security when teaching math.					

Thank you so much!

APPENDIX D

Cover Letter of Questionnaire for Pupil-Respondents

Republic of the Philippines
SAMAR STATE UN IVERSITY
Catbalogan, Samar

February 14, 2008

Dear Respondents,

Greetings!

I am presently conducting a research entitled " **Correlates of Mathematics Achievement of Grade VI Pupils in Daram I District ",** impartial fulfillment of the requirements for the degree of Master of Arts in Teaching Mathematics (MAT-MATH).

In view of this, you are chosen to be one of the respondents of this study with utmost confidentiality.

Thank you very much for your cooperation. God bless you.

Respectfully yours,

CLARIFEL D. ESTRADA
Researcher

APPENDIX E

Questionnaire for Pupil-Respondents of the Study

PUPIL- RESPONDENTS' PERSONAL PROFILE

Name _____
(Optional)

Age _____

Sex ( ) Male
( ) Female

Grade Level ( ) 1st
( ) 2nd
( ) 3rd
( ) 4th
( ) 5th
( ) 6th

Average3 Family Income/Month _____

Parents' Educational Attainment

Father		Mother
( ) Elementary Level		( )
( ) Elementary Graduate		( )
( ) High School Level		( )
( ) High School Graduate		( )
( ) College Level		( )
( ) College Graduate		( )
( ) Graduate/Post-Graduate		( )

Parents' Occupation
Father _____
Mother _____

APPENDIX F

Modified Mathematics Attitude Rating Scale (MMAS)

DIRECTIONS: The following are statements that reflect your attitudes towards mathematics. Beside each of your statements presented below, please indicate your rating using the scale:

5 - Very Highly Influential (VHI)
4 - Highly Influential (HI)
3 - Moderately Influential (MI)
2 - Less Influential (LI)
1 - Not Influential (NI)/Very Less Influential (VLI)

Attitude Statements	VHI 5	HI 4	MI 3	LI 2	NI 1
1. Mathematics is creative.					
2. Math problems make my brain works.					
3. I like math because my math teachers appear to have domain of some secret knowledge.					
4. I am relaxed in my math lessons.					
5. The rightness or wrongness of my mathematics work is often obvious to me.					
6. I find people who can do math clever.					
7. Math is fun much is learned from a wrong answer as from a right one.					
8. I find math not threatening at all.					
9. Learning math to me is easy.					
10. I enjoy using guesswork in solving math problems.					
11. Math is alright especially if it is expressed in words not in symbols.					
12. I like math there is no half right answers.					
13. I like math because it is too abstract.					
14. In math negative numbers have different					

meaning and symbolism from positive numbers.					
15. It is okay for me if sometimes I am stuck on a math problem.					
16. I like Math because it uses my common sense.					
17. I like math for the symbols and numbers used have specific meaning.					
18. I find math symbols useful.					
19. I am not ashamed if I can't do a piece of math.					
20. I like the letter "x" used to represents the unknown in math it is full of mystery.					
21. I find beauty in the process/algorithm for getting things done in Math.					
22. I find math very interesting.					
23. Math to me is like a sickness, I am lost without it.					
24. I am anxious to learn math always.					
25. Math releases tension and boredom.					

Thank you so much!

APPENDIX G

Modified Mathematics Anxiety Rating Scale (MMARS)

Direction:

The following are statements that present some factors that influence pupils' mathematics anxiety. Please indicate your perceptions relative to the extent by which some factors influence pupils' mathematics anxiety, using the given scales:

5 - Very Highly Influential (VHI)
4 - Highly Influential (HI)
3 - Moderately Influential (MI)
2 - Less Influential (LI)
1 - Not Influential (NI)/Very Less Influential (VLI)

Indicators	Responses				
	VHI 5	HI 4	MI 3	LI 2	NI 1
A. PAST EXPERIENCES IN MATHEMATICS 1. Being laughed at by classmates for every wrong answer to word problems or simple arithmetic operations during class recitation or board work.					
2. Failing to get the right answer after several attempts.					
3. Parents, teachers and classmates criticized math computations.					
4. Being made to practice by teachers'/parents math computations every vacant hour, after class, or before playtime with exercises written in flashcards.					
5. Expected by teachers/parents to study and obtain high scores during examination in class or during tutorials with parents or with a tutor at home.					
B. PEOPLE'S EXPECTATIONS TO LEARN MATH					
6. Parents expect child to be good in mathematics.					
7. Teachers expect pupils to get the right answer using the right procedure.					

8. Pupil is pressured by classmates to achieve high scores in quizzes, recitation, assignment and project in math.					
9. Pupil have brothers and sisters who excelled in math during their elementary grades.					
10. Society demands the pupils to learn math.					
C. BELIEFS/MYTHS ABOUT MATHEMATICS					
11. Pupil is expected to be good in math since every one is born with an aptitude for math.					
12. Gender bias that boys are better in math than girls.					
13. Pupils are expected to be good in Math if he/she is good in computations.					
14. Pupils who are older are wiser and those who are wise are good in math.					
15. Pupils are expected to have correct answers to a math problem since there are many ways to get the right answer in math.					
D. TEACHING METHODOLOGIES USED					
16. Teachers call pupils who are not attentive to answer questions during the lecture-discussion on explaining important mathematical concepts.					
17. Teachers calling pupils to recite while discussing math lessons.					
18. Teachers after providing several examples after discussing the concepts call pupils to solve math problems/exercise on the board to apply math concepts.					
19. Teachers during informal discussion ask pupils to give comments regarding what they know about the lesson.					
20. Teachers focusing attention to those who are talented and those who are poor in math and enjoy it.					
E. CLASS ACTIVITIES TO MEASURE MATHEMATICS ACHIEVEMENT					
21. Periodic exercises after every lesson discussed in Math by the teacher.					
22. Assignments/home works are given after every meeting in class.					
23. Quiz before starting the lesson as a review					

mechanism of the previous lesson.					
24. Math projects about a particular unit of lesson.					
25. Going on educational trips for practical application of mathematics.					
F. CLASSROOM ENVIRONMENT					
26. Math class is well-decorated with artistic presentation of concepts in math such as graph, drawings, pictures and others.					
27. Math classroom is well-ventilated for math activities.					
28. Math room is well-lighted for clearer vision of things such as mathematical formulate to be memorized and others.					
29. Math room is spacious and has a math corner for each pupils who are having a hard time understanding math.					
30. Math room has sufficient number of chairs and tables for every pupil so they can be comfortable with their math task.					

Thank you so much!

APPENDIX H

School-Based Achievement Test in Mathematics VI

Republic of the Philippines
DARAM I CENTRAL ELEMENTARY SCHOOL
Daram, Samar

Name _____ **Grade/Section** _____
Teacher _____

DIRECTIONS: Read the questions carefully, and then choose the letter of the correct answer. Write your answer on the blank spaces provided before each item.

_____ 1. Eight added to the product of five and three is equal to what numerical expression?

a. (8+3) x 5
b. 8 + (3 x 5)
c. (8 + 3) + 5
d. 8 x (3 + 5)

_____ 2. What is the meaning of 5^3

a. 5 x 5 x 5
b. 5 + 5 + 5
c. 5 – 5 - 5
d. 5 ÷ 5 ÷ 5

_____ 3. In 6^2, what is the base?

a. 2 b. 6 c.6 and 2 d. all of the above

_____ 4. Which is the correct answer to this numerical expression (2x3) + 8?

a. 28 b. 27 c. (8 + 3) + 5 d. 25

_____5. In (18-4) – (5+3) = N, perform the indicated operations to find the value of N. expression?

a. 4 b. 5 c. 6 d. 7

_____ 6. Jethro has 25 one-centavo coins in his piggy bank. He writes in figures the money he has as 25/100. How should he write this using peso sign?

a. P 025 b. P 25.00 c. P 35.00 d. P 0.25

_____ 7. The average size of a raindrop is about 5/100 dm. Write 5/100 dm in decimal.

a. 0.5 dm b. 0.05 dm c. 0.005 dm d. 5 dm

_____ 8. In 3.2741, what is the value of 7?

a. ones b. hundredths c. hundred d. thousand

_____ 9. Tina bought a pair of shoes for P 495.50, a cost for P 527.20 and a pocketbook for P94.75. How much change did she receive from her P 2000.00?

a. P 1,117.45 b. P 882.55 c. P 882.50 d. P 8882.45

____10. Add 82.839 to the difference of 189 and 158.84.

a. P 113 b. P 112 c. P 111 d. P 110

____ 11. Subtract 0.4358 from the sum of 0.5147 and 0.3977.

a. 0.4766 b. 4765 c. 0.4764 d.0.4763

____ 12. Mrs. Jose had 15 meters of curtain materials for the kitchen. He was able to use 11.60 meters of curtain. How many meters of cloth were not used?

a. 3.30 m b. 3.40 m c. 3.50 m d. 3.60m

____13. Wong runs 4.8 km every morning. About how many kilometers does she run in a week?

a. 31.6 km b. 32.6 km c. 33.6 km d. 34.6 km

____ 14. If 6.75 x 8.56 is rounded to the nearest whole number, what is the product?

a. 58 b. 78 c. 88 d. 98

____ 15. A carton contains 48 cans of food, each weighing 0.375 kg. What is the weight of the carton of food?

a. 16 kg. b. 17 kg. c. 18 kg d. 19 kg

____ 16. A 24-meter string is to be divided into 30 pieces. How long will each be?

a. 0.8m. b. 0.7m. c. 0.6m. d. 0.5m

____ 17. What is the quotient of 26.25 divided by 1.75?

a. 15 b. 16 c. 17 d.18

____18. Mang Tony has 7.5 hectares of land. He wants to divide it into 1.5 hectares from his sons. How many sons does Mang Tony have?

a. 5 b.6 c. 7 d. 8

____19. What is the GCF of 8 and 24?

a. 2 b. 4 c. 8 d. 12

____20. What is the LCM of 20 and 45?

a. 140 b. 160 c. 180 d. 200

____21. What is the lowest term of 5/20?

a. ½ b. ¼ c. 1/6 d. 1/7

____22. Change 145/4 to mixed form.

a. 3 2/4 b.4 2/4 c. 5 2/4 d. 6 2/4

____ 23. Lina ate 2/8 of a cake while Vic ate 4/8 of the cake. How much cake did both of them eat together?

a. 6/8 b. 5/8 c. ¾ d. 2/4

____ 24. Long is 1 2/4 m tall. Ling is ¼ meter shorter. How tall is Ling?

a. 1 ¾ m b. 4/12 c. 1¼ m d. 1 2/4 m

____ 25. Junjun found 5/4 of a pie in the refrigerator. He ate 1/3 of it. What fraction of the whole did he eat?

a. 3/12 b. 4/12 c. 5/12 d. 6/12

____ 26. What is the reciprocal of the difference between 5/6 and 1/6?

a. 4/6 b. 2/3 c. 6/4 d. 3/2

____ 27. Find the quotient of 3 ÷ ¾ in lowest term.

a. 12/3 b. 9/4 c. 3/12 d. 4

____ 28. Nick and his father can repair one desk in 1/3 hour. How many desks can they repair in 3 hours?

a. 6 b. 7 c. 8 d. 9

____ 29. What is the ratio of 5 kites to seven boys in colon form?

a. 5:7 b. 7:5 c. 5/7 d. 7/5

____ 30. What is the ratio of 16 girls to 18 boys in lowest term?

a. 16:18 b. 8:9 c. 18:16 d. 9:8

____ 31. For 5 hotcakes, 2 tablespoons of sugar are needed. How many tablespoons is needed to make 25 hotcakes?

a. 10 b. 15 c. 20 d. 25

____ 32. 16 is 25% of 64. the percentage in the problem is _____.

a. 16 b. 25 c. 64 d. 41

____33. 48% of 290 is what number?

a. 137.20 b. 138.20 c. 139.20 d. 140.20

____ 34. If the original price is P 100 and the discount is P 15, what is the amount of sale price?

a. P 75.00 b. 85.00 c. P 95.00 d. P 100.00

____35. A spatial figure having a circular base and one vertex.

a. Pyramid b. Cylinder c. Cone d. rectangular prism

____ 36. A rice field is in the form of a parallelogram. If the base is 38 m and its height is 25 m, how many square meters can be planted with rice?

a. 950 sq. m. b. 850 sq. m. c. 750 sq. m. d. 650 sq. m.

____ 37. The bases of a trapezoid measure 10 m and 15.5 m while the height is 8 m. What is its area?

a. 104 m b. 103 m c. 102 m d. 101 m

____ 38. A circular flower plot has a radius of 5 m. What is its area?

a. 78.5 m b. 78.4 m c. 78.3 m d. 78.2 m

____ 39.A circular lot has a radius of 10 m. What is its diameter?

a. 15 m b. 20 m c. 25 m d. 30 m

____ 40. A glass top of an office table has a length of 105 cm and a width of 61 cm. What is its area?

a. 6402 cm b. 6403 cm c. 6404 cm d. 6405 cm

__ 41. A piece of soap is 9 cm by 4 cm by 3 cm. What is its volume?

a. 108 cm b. 107 cm c. 106 cm d. 105 cm

____ 42. - - - - - - - - - - - - - - What is AB?

A point b. line c. line segment d. ray

____ 43. A - - - - - - - - - -O - - - - - - - B. What angle is COB?

C

a. acute b. right c. reflex d. obtuse

____ 44. In the month of April, the electric readings is 2150 kwh, for the month of May shows at about 2288 kwh. What is the total kwh used?

a. 138 kwh b. 137 kwh c. 136 kwh d. 135 kwh

____ 45. Study the table, and then answer the question below.

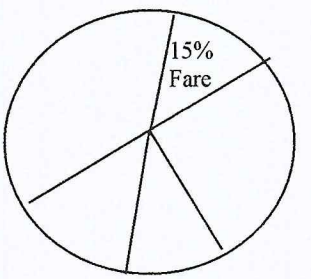
HEADING	JUNE	JULY
Previous	**3047**	**8260**
Present	**3588**	**8296**
Consumption	**?**	**?**

____ 45. What is the water consumption for the month of June?

a. 541 b. 542 c. 543 d.544

____ 46. Mr. Cabral divides his own circle graph to show how he budgets his monthly salary. What percent is used for shelter?

a. 15% b. 25% c. 35% d. 45%



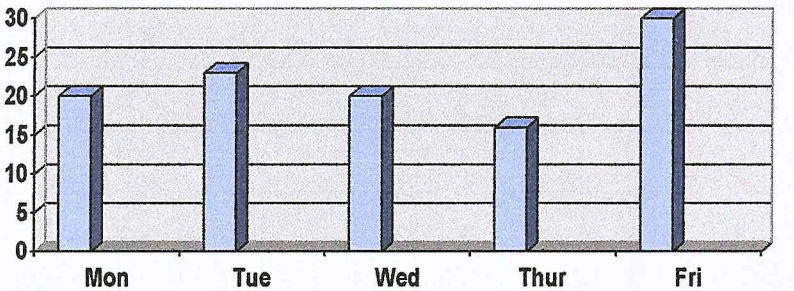
____ 47. What percent was used for food?

a. 25% b. 30% c. 35% d. 20%

____ 48. A pipe is 10 m long. How long will it take to cut the pipe into 10 pieces of equal length? Each cut takes one minute.

a. 10 min. b. 9 min. 8 min. d. 7 min.

For items 49 and 50, refer to the graph.



____ 49. What days have the same sale of toys?

a. Monday and Wednesday
b. Tuesday and Wednesday
c. Monday and Friday
d. Wednesday and Friday

____ 50. What day has the highest sale of toys?

a. Monday
b. Tuesday
c. Thursday
d. Friday

Feedback to the School-Based Test

1. b
2. a
3. b
4. c
5. c
6. d
7. c
8. b
9. b
10. a
11. a
12. b
13. c
14. a
15. c
16. a
17. a
18. a
19. c
20. c
21. b
22. a
23. c
24. c
25. b
26. b
27. d
28. d
29. a
30. b
31. a
32. a
33. c
34. b
35. c
36. a
37. a
38. a
39. b
40. d
41. a
42. c
43. d
44. a
45. a
46. b
47. a
48. a
49. a
50. d

CURRICULUM VITAE

CURRICULUM VITAE

NAME	: CLARIFEL DIOCTON ESTRADA
ADDRESS	: Brgy. Mercedes Catbalogan, City
DATE OF BIRTH	: January 20, 1978
PLACE OF BIRTH	: Tanay, Rizal
PRESENT POSITION	: Elementary Grade Teacher 1
STATION	: Parasan Elementary School
CIVIL STATUS	: Married

EDUCATIONAL BACKGROUND

Elementary	: Mercedes Elem. School
Secondary	: Samar State Polytechnic College
College	: Samar State Polytechnic College
Course Graduate	:Bachelor of Secondary Education Major in Mathematics
Units Earned	: Bachelor of Elementary Education

Graduate Studies : Samar State University

Curriculum Pursued: Master of Arts in Teaching

Major : Mathematics

AWARDS RECEIVED

Deans Lister.....College Year

Loyalty Award.....Fourth Year College

POSITION HELD

Elementary Grade Teacher I..... 20003-2006

Elementary Grade Teacher I
Step 2 ..... 2006-to the present

TRAINING/SEMINAR ATTENDED

Seminar Workshop on Elementary Mathematics Daram I District	Daram I District September 21-22,2000
Basic Education Curriculum Seminar	Dvision Office, Samar June 10-14, 2002

LIST OF TABLES

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